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early $30 Million Fertilizer Grants anned for Korea

$9 and $20 Million Procurements Added For Fiscal Year

ASHINGTON—Nearly 30 million lars of fertilizer exports sales to rea are ahead for this fiscal year, ording to reports reaching Crop- here. These sales, to be financed the International Cooperation ministration, are in addition to a million procurement authorization rently waiting acceptance by Ko- n officials.

Even before the Korean officials completed the outstanding $9 lion procurement authorization it understood that they entered a uest for approval of a $20 million horization.

This would involve approximate- 250,000 metric tons of nitro- nous fertilizer materials and 17,- 0 short tons of phosphatic mate- als.

n additional $9 million procure- nt for Korean fertilizer require- nts has already been programmed ICA.

The $20 million requirement is said e needed for late November-De- ber delivery in Korea.

elay in approving the outstand- Korean $9 million authorization ertilizer is attributed to the stub- nness of Korean buyers to accept anese-origin materials, although orters tell Croplife that Japanese-

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Consumption of Mixtures Jumps 71% in 1953-54, USDA Says

Estimated Regional Use of Mixtures, in Short Tons

Region:	Fertilizer-pesticide mixtures 1952-53	Fertilizer-pesticide mixtures 1953-54	All mixed fertilizers, 1953-54
New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)	400	950	352,000
Middle Atlantic (Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania, West Virginia)	1,000	1,800	1,838,000
South Atlantic (Florida, Georgia, North Carolina, South Carolina, Virginia)	60,000	73,200	5,022,000
East North Central (Illinois, Indiana, Michigan, Ohio, Wisconsin)	2,500	6,700	3,621,000
West North Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North and South Dakota)	2,000	42,600	1,343,000
East South Central (Alabama, Kentucky, Mississippi, Tennessee)	200	1,200	2,040,000
West South Central (Arkansas, Louisiana, Oklahoma, Texas)	100	100	713,000
Mountain (Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, Wyoming)	1,100	1,450	56,000
Pacific (California, Oregon, Washington)	11,100	11,100	273,000
Puerto Rico	8,700	10,000	283,000
Total	87,100	149,100	15,541,000

WASHINGTON, D.C.—An increase of 62,000 tons in consumption of fertilizer-pesticide mixtures in the 1953-54 season over the previous year, is reported by the U.S. Department of Agriculture in its recently-issued "Situation Report on Fertilizer-Pesticide Mixtures."

According to its report, the 1953-54 total of such mixtures came to 149,100 tons, 71% more than the 87,000 tons used during the previous year. Information contained in the report is based primarily on data obtained from state experiment station workers, pest control officials, and fertilizer manufacturers, USDA states.

The geographic distribution of mixtures; how they are used; what types of materials are utilized; recommendations issued by some of the states and research problems are all covered in the USDA compilation.

Fertilizer-pesticide mixtures are registered or sold in 40 States and Puerto Rico, according to latest figures compiled from 1953-54 records kept by fertilizer control officials. Actually, the mixtures are believed to be sold in almost every state and territory, since some states do not require registration of mixes as such, and others do not require registration of custom mixes.

In all but two regions, use of the mixtures increased in 1953-54. The South Atlantic region con-

(Continued on page 20)

Canadian Association Hears Talks on Pesticide Tolerances, New Products on the Horizon

MONTREAL—Ramsay G. Smith of Toronto was elected president of the Canadian Agricultural Chemicals Assn. at the organization's third annual meeting held on Oct. 13-14 at Ste-Adèle-en-haut, Que. Mr. Smith, president and general manager of Charles Albert Smith, Ltd., Toronto, succeeds M. F. Anderson, general manager, Naugatuck Chemicals, division of Dominion Rubber Company, Ltd., Montreal.

Other officers elected included Dr. E. P. Aikman of Nichols Chemical Co., Ltd., Montreal, and K. B. Owens of Monsanto Canada, Ltd., Montreal, as first and second vice presidents respectively. Merle E. Ward of Du Pont Company of Canada, Ltd., Toronto, was elected secretary and J. H. Elliott of Rohm & Haas Company of Canada, Ltd., Toronto, was elected treasurer.

The new directors are A. W. Hutchison of Shell Oil Co. of Canada, Ltd., Toronto; J. H. D. Ross, Canadian Industires (1954), Ltd., Montreal; P. E. Redman, National Grain Company, Ltd., Winnipeg; and S. R. Stovel, North American Cyanamid, Ltd., Toronto.

Apart from the officers, R. M Ferguson of Dow Chemical of Canada, Ltd., Winnipeg remains on the board for one more year and the retiring president, M. F. Anderson, becomes a director ex-officio for one year.

Nearly 200 representatives of Canadian and U.S. manufacturers of agricultural chemicals together with delegates from the U.K. heard S. J. Chagnon, assistant deputy minister of Canada's federal Department of Agriculture, Ottawa, predict that better fertilizers, insecticides that will be absorbed by the plant through its leaves and roots, and much cheaper soil conditioners, will be some of the important discoveries of the agricul-

(Continued on page 8)

FDA Approves Tolerance Levels For Pesticides

WASHINGTON, D.C.—Within the past week, the Federal Food and Drug Administration has approved tolerance levels for residues of pesticidal chemicals used on raw agricultural commodities, adding to previous actions in this field since the Miller Amendment to the Food, Drug and Cosmetic Act has been fully effective.

Among these actions was one concerning malathion wherein FDA has authorized a tolerance level for this product in the ratio of 8 parts per

(Continued on page 5)

et Income of TVA Fertilizer Program akes Sharp Decline in 1954-55

KNOXVILLE — The fertilizer and nitions development program of Tennessee Valley Authority rned a net income of $7,680 in the cal year ended June 30, compared h a net income of nearly $500,000 year earlier the agency's annual ancial report showed.

The sharp decline was caused by writing off of about one million llars invested in fertilizer manucturing facilities which were sold ring the year, the report stated. e principal item was the fused tricalcium phosphate plant at Columbia, Tenn., which was sold when the fertilizer experiment with that product was terminated.

The financial statement disclosed that TVA's fertilizer production for the year included 192,374 tons of ammonium nitrate fertilizer, and 87,758 tons of phosphorus plant nutrient in concentrated super-phosphate, calcium metaphosphate, and fused tricalcium phosphate. It also included 2,980 tons of diammonium phosphate, a new fertilizer material.

August Output of Anhydrous Ammonia Higher Than Year Ago

WASHINGTON — Production of anhydrous ammonia during August totaled 237,202 short tons, compared with 236,759 short tons in July and 222,430 in August, 1954, according to the U.S. Department of Commerce.

August output of fertilizer grade ammonium nitrate was 121,978 short tons, compared with 123,817 in July and 140,743 in August a year ago. Production of synthetic ammonium sulfate totaled 82,453 short tons in August, a gain from 79,948 in July but below the 96,206 short tons produced in August, 1954.

Production of phosphoric acid in August totaled 244,502 short tons, compared with 197,401 in July and 232,995 in August, 1954.

Minnesota Gets Grant For Study of Atom

ST. PAUL — Four electric power firms have announced a $100,000 grant to the University of Minnesota for research in application of atomic energy to agriculture.

The firms are the Northern States Power Co., Minneapolis; Central Power Electric Coperative, Inc., Minot, N.D.; Minnkota Power Cooperative, Inc., Grand Forks, N.D., and Otter Tail Power Co., Fergus Falls, Minn. The University is to receive annual grants of $20,000 for five years.

AT CHARTER MEETING

Weed Society of America to Hear Talks On Economic Problems, Control Progress

WASHINGTON — The economic problems caused by weeds and the progress in weed control in the U.S., Canada and Great Britain will be highlighted at the charter meeting of the Weed Society of America at the Hotel New Yorker, New York City, Jan. 4-5, 1956.

Hosts to the meeting will be the Northeastern Weed Control Conference whose annual meeting will be held Jan. 6 following the Weed Society charter meeting.

The Weed Society of America, founded Dec. 8, 1954, was formed to encourage and promote the development of knowledge concerning weeds and their control through publishing research findings, fostering high standards of education, encouraging effective regulation and promoting unity in all phases of weed work.

R. H. Beatty, American Chemical Paint Co., Ambler, Pa., is serving as president of the society during the organization period. Other officers are W. B. Ennis, Jr., U.S. Department of Agriculture, State College, Miss., vice president, and W. C. Shaw, USDA, Beltsville, Md., secretary-treasurer.

The first day of the charter meeting will be devoted to a discussion of problems, progress and organization of weed control in England, Canada and the U.S.

Also scheduled for the first day are talks concerning weed control as a part of American agriculture, industry's views of modern weed control and weed control educational problems in the United States. A paper on the mechanisms of herbicidal action will also be presented the first day.

Sectional meetings are planned for the second day to discuss various phases of weed control. Subjects of these sectional meetings will be the control of weeds in agronomic and horticultural crops, control of weeds in turf and non-agricultural areas and weed control teaching and extension. Other subjects for sectional meetings will be the control of aquatic weeds and the public health, regulatory and ecological, physiological and edaphic aspects of weed control.

Chairman of the sectional meetings will be:

Control of Weeds in Agronomic Crops—C. J. Willard, Ohio State University and Agricultural Experiment Station, Columbus, Ohio.

Control of Weeds in Horticultural Crops—R. D. Sweet, Cornell University, Ithaca, N.Y.

Control of Weeds in Non-Cultivated Areas—R. A. Darrow, Texas A&M College, College Station, Texas.

Ecological, Physiological and Edaphic Aspects of Weed Control—A. S. Crafts, University of California, Davis, Cal.

Weed Control in Turf—G. C. Nutter, University of Florida, Gainesville, Fla.

Public Health—A. H. Fletcher, State Department of Health, Trenton, N.J.

Regulatory—W. S. Ball, California State Department of Agriculture, Sacramento, Cal.

Teaching and Extension—E. P. Sylwester, Iowa State College, Ames, Iowa.

Control of Aquatic Weeds—F. L. Timmons, USDA, Laramie, Wyo.

Present plans call for the Weed Society of America to meet every two years with one of the four regional weed conferences serving as host to the meeting.

The program for the Northeastern Weed Control Conference Jan. 6, will consist of panel discussions highlighting new developments in weed control. Panel chairmen for the discussions will be:

Horticultural Crops—L. L. Danielson, Virginia Truck Experiment Station, Norfolk, Va.

Agronomic Crops—D. A. Schallock, Rutgers University, New Brunswick, N.J.

Forestry and Industrial Weeds—W. C. Bramble, Pennsylvania State University, University Park, Pa.

Aquatic Weeds—Robert Huckins, New Jersey State Fisheries Laboratory, Milltown, N.J.

Public Health—R. K. Sprague, Department of Public Health, Greenwich, Conn.

Regulations Governing Use of Herbicides Revised in California

SACRAMENTO—Regulations governing use of certain injurious herbicides have been revised by the California Department of Agriculture. The new regulations establish the form of statement that a dealer must require a purchaser to sign when delivery is made of these materials.

The regulations which have governed use of the hormone-like weed killing compounds 2,4-D, 2,4,5-T and MCP, now also include the newly developed chemicals 2,4-DP and silvex.

Permits must be obtained from county agricultural commissioners before using injurious herbicides sold or delivered in a quantity of more than one pint of liquid or one pound of dry formulation.

The regulations on injurious materials were changed to include TEPP regardless of the method of application. The regulations formerly ap to TEPP only when it was appli a thermal aerosol. A permit is required for use in any form.

The 1955 legislature enacted prohibiting the sale or delivery o material or herbicide for which and regulations have been adopte the Department of Agriculture a jurious marterials or injurious h cides unless the purchaser sig written statement that he hol valid permit from the county cultural commissioner to use it.

NEW CROP RECOMMENDE

FAYETTEVILLE, ARK. — Asp gus, a vegetable crop new to the is being recommended as suitabl the Arkansas River Valley follo extensive research at the Arka Valley Vegetable Substation at Buren. According to G. A. Bra assistant horticulturist at the versity of Arkansas' Agricultural periment Station, yields as hig 4,000 lb. per acre have been obta

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Johns-Manville has developed a new line of synthetic calcium silicates with unusually high absorptive capacities, large surface area, small particle size and excellent dry-flow properties. Called Micro-Cel, this new diluent is designed specifically for the production of free-flowing high percentage concentrates with either dry, viscous or liquid poisons.

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70% TOXAPHENE · 15% ARAMITE · 75% DDT
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Cuts costs to a new low

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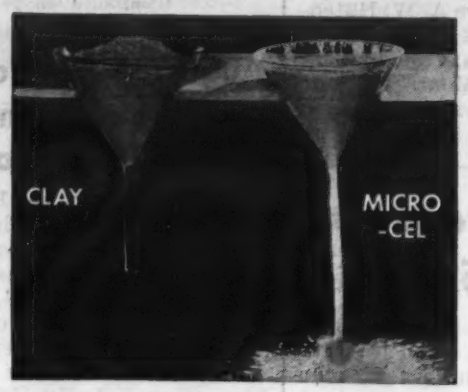
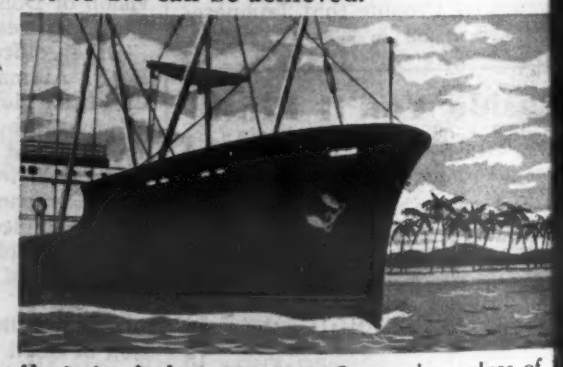


Flows like a liquid—Micro-Cel maintains its exceptional free-flow properties even after absorbing high concentrations of poisons.

Excellent storage properties

Formulations of 75 per cent DDT wettable ders based on Micro-Cel, as developed by J Manville Research, will meet govern specifications. Suspension values after stora 1.5 to 2.0 can be achieved.



Meets tropical storage test—Suspension values of 2.0 after storage can be achieved in 75% DDT we powder formulation when based on Micro-Cel.

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ide Use of Antibiotics for Control of lant Disease Seen by USDA Scientist

ASHINGTON — Dr. W. J. Zau-er, plant pathologist of the U.S. artment of Agriculture, predicted 21 that in the near future anti-ics may be used as widely for t disease control as they now are he control of human diseases.

r. Zaumeyer told scientists from U.S. and 13 foreign countries at-ding the First International Con-nce on the Use of Antibiotics in iculture that "rapid advances" e been made in this new field in nt years.

lready antibiotics have been used r commercial conditions to con-formerly incurable diseases of its, vegetables and tobacco plants, Zaumeyer said.

n addition to disease control, Dr. meyer noted, researchers have nd a yield increase in tomatoes, peppers, and potatoes treated with an antibiotic spray. In tomatoes, he said, the increase was as much as 50% over untreated plants.

Diseases already controllable with antibiotics include fire blight of pears and apples, walnut blight, bacterial spot of tomatoes and peppers, potato seed piece decay, wildfire and blue mold of tobacco, halo blight of beans and bacterial blight of celery, Dr. Zaumeyer reported.

The scientist told the conference, sponsored by the National Academy of Sciences - National Research Council and its Agricultural Research Institute, that antibiotics—unlike standard sprays—are absorbed by the plant and carried upward via the plant's vascular system.

Antibiotics may be either sprayed or dusted on the plants, or used as a dip to treat seeds before planting, Dr. Zaumeyer said. He added that sprays and dusts can be used both to prevent disease from occurring and to treat already infected plants.

He also reported that greenhouse tests have shown that a crude filtrate containing five different antibiotics seems to be effective in protecting plants against a variety of fungus parasites, including bean rust, stem rust of wheat, downy mildew of lima beans, and powdery mildew of beans, blue grass and cucumber.

The present accelerated research interest in antibiotics for plant-disease control is likely to yield answers to many of these problems in the near future, Dr. Zaumeyer believes. Prior to 1952, only a few institutions were engaged in antibiotic research; now, since the discovery that certain antibiotics inhibit bacterial plant pathogens, at least 50 plant pathologists in State and Federal agencies, and many others employed by private industry, are engaged in antibiotic research for plant-disease control.

Many of the major manufacturers of antibiotics are expanding their research facilities and have planned work specifically to develop antibiotics for protection against plant diseases.

Robert J. Minbiole To Head Dow Sales Office in New Orleans

MIDLAND, MICH.—The Dow Chemical Co. has announced that its New Orleans office has been elevated to full sales office rank and Robert J. Minbiole, a sales department executive, has been appointed as manager.

Donald Williams, vice president and director of sales, said the new status for the New Orleans office is part of an over-all program to broaden sales activities for improved customer service and to decentralize administrative functions of the sales department in the interests of increased efficiency in the field.

Established last January, the office has operated as a branch of the company's St. Louis office. It will continue to service markets in an area including Louisiana, the southern half of Mississippi, southwestern Alabama and northwestern Florida. Dow's major product groups, industrial and fine chemicals, plastics, magnesium and agricultural chemicals, are handled by the office.

Mr. Minbiole, who joined Dow in 1940, has served since 1944 as manager of film and sheeting sales for the company's plastics department. A native of Albany, N.Y., he holds a B.S. degree in chemical engineering from Case Institute of Technology, Cleveland.

Net Sales, Earnings of American Cyanamid Show 9 Month Increase

American Cyanamid Co. has announced that during the first nine months of 1955 net sales of the company and its wholly-owned subsidiaries were approximately $336,268,000 as compared with $293,326,000 for the first nine months of 1954.

Consolidated earnings before tax approximated $52,754,000 for the nine months of 1955 as against $38,997,000 for the corresponding period last year. The provision for Federal and foreign taxes on income was $25,500,000 and in the preceding year the amount for the nine months period was $18,300,000.

Consolidated net earnings were $27,254,000 against $20,697,000 for the 1954 period.

Common Stock outstanding increased to 8,837,245 shares at Sept. 30, 1955 from 8,722,921 shares at Dec. 31, 1954 as the result of conversions of preferred stock during that period.

After deducting dividends on preferred stock ($1,680,000 for 1955 and $737,000 for 1954), net earnings applicable to common stock for the first nine months of 1955 amounted to $2.89 per share based on common stock outstanding Sept. 30, 1955 compared with $2.29 per share for the first nine months of 1954 based on shares outstanding at the end of 1954.

Fertilizer Use in 1954-55 Sets New Record in Minnesota

ST. PAUL—Fertilizer use in Minnesota during the year ended July 1 totaled 370,923 tons, 16.5% more than during the previous year, Byron G. Allen, state commissioner of agriculture has reported. It is a new yearly record for fertilizer use in the state.

The total included 289,000 tons of mixed goods and 81,000 tons of materials.

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801	off-white	225	200	15	150
802	white	400	425	9	175
803	off-white	300	350	12	100
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INSECT, PLANT DISEASE NOTES

Heavy Populations of Corn Borers in Iowa

AMES, IOWA — Corn borers in near record numbers are being found in cornfields throughout the state, with heaviest infestations being located in eastern, south-central and southeastern portions of the state The current infestation is regarded as the third highest on record, being surpassed only by those of last fall and 1949.

Five districts showed counts of more than 400 borers per 100 plants, with 90 to 99% of the plants infested. Lowest counts were found in southwest and northeast Iowa.

H. M. Harris, state entomologist, said that as a statewide average, each 100 corn plants contained 349 corn borers, with 93% of the plants infested. The percentage of plants infested is higher than last year, he said.

Iowa farmers started the 1955 season with a serious corn borer threat, Mr. Harris said. Spring survival of the overwintering population—second highest on record—was high and early development moved along about two weeks ahead of normal.

Cold weather in early June slowed moth flight and egg-laying, and the egg-laying season was an extended one. The second-brood egg-laying period was also extended.

This meant that it was difficult to find at any one time sufficient infestation to warrant treatment over large areas.

Entomologists report considerable damage by second-brood borers, which caused dropped ears and broken stalks.

Harris drew two conclusions from this year's corn borer activity: Hot weather and drouth don't necessarily stop the corn borer's attack, and it is important for each farmer to watch his own fields to judge whether and when treatment is needed.

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Indian Meal Moth Infests Kansas Wheat

MANHATTAN, KANSAS — The Indian meal moth has been found in some bins of wheat in Kansas, according to Dell Gates, extension entomologist at Kansas State College. Mr. Gates said that the presence of the insect may effect the grain trade under U.S. Food and Drug restrictions.

The adult moth is about three-quarters of an inch in length, but it is the larvae that does the damage to the grain by webbing several kernels together and feeding on the softer parts of the wheat. Application of pyrethrin as a finely atomized spray on the top of the bin is being recommended for control.

Yellow clover aphids were found in nearly all alfalfa fields that were examined in the following southeast Kansas counties: Linn, Allen, Wilson, Elk, and Cowley. Counts ranged from 2 aphids per 20 sweeps to highs of 45 aphids per sweep. Predators, ladybeetles, lacewings, and nabida ranged from 1 to 12 per 20 sweeps.

A light infestation of Hessian fly was observed in a field of vounteer wheat in south central Marshall County recently.

Scattered Insect Pests Reported from S. Carolina

CLEMSON, S.C.—Highlights of insect notes from South Carolina indicate an abundance of cutworms near Clemson; grassworm moth and velvet-bean caterpillar near Charleston; and Oriental fruit moth at Lancaster.

Plant diseases reported included rot or wilt of collards in the mid-

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IRRIGATED SOILS: Their Fertility and Management—New 1954—Second Edition
D. W. Thorne and H. B. Peterson, Department of Agronomy, Utah State Agricultural College. Dr. Thorne is also Chief of Soils and Fertilizer Research Branch, Tennessee Valley Authority.

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W. B. Andrews

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The theme of the book is the necessity of chemical fertilizers to maintain the fertility of the soil. It has concise information on which soil conditions and which chemical fertilizers are most suited for special crops and vegetables. Space is devoted to cereal crops, barley, wheat, oats and rye; to roots and tubers, sugar beets, potatoes, carrots, parsnips and turnips; to vegetable crops, beans, peas, alfalfa, lupines; to grasses and clovers; to onions, flax, kale, cabbages, lettuce, tomatoes, celery, cauliflower and fruits. It clarifies the relationship of manures, compost and chemicals as fertilizers and points out how chemicals should be used to obtain the best results. Its philosophical soundness and logic should do much to avert the confusion of thought introduced by the advocates of compost and manure as against the use of chemical fertilizers **$8.50**

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section of the state and little leaf pecan at Sumter.

Florida's Insect Activity Still High in Many Areas

GAINESVILLE, FLA. — Bean le roller in all stages was collected beans 6 miles north of Gainesvil Larvae were causing serious dama to approximately 50 acres of bea Mexican bean beetle in the larv stage was collected on beans 6 mil north of Gainesville. A few coloni were found in a 50 acre field.

Corn earworm in the larval stag was causing 15-20% damage in 5 acres of beans near Gainsville, an Cowpea curculio in the egg an adult stages was collected on pol beans at Homestead, Dade County Most early beans are seriously in fested and growers are likely t lose some of the early crop. Thi is the worst infestation in 10 year

Fall armyworm in the larval sta infesting practically every sm plant was collected on sweet co at La Belle, Hendry County, and w collected in the larval stage avera ing 10 per square ft. of grass Bradenton, Manatee County.

Sugar-cane borer in the larva stage was collected on rice at Ver Beach, Indian River County. N counts were made. Rhodes gras scale in the larval and pupal stage averaging 20 per plant was collect ed on Bermuda grass and cra grass alongside a golf course gree at Fern Park, Seminole County.

Southern armyworm in the larv stage was collected on tomato a eggplant at Immokalee, Collier Cou ty. No counts were made.

Tomato hornworm in the larv stage was collected on tomato Immokalee, Collier County, but counts were made.

Corn Diseases Discussed In New USDA Bulletin

WASHINGTON—One of the olde diseases of corn, bacterial wilt, a another, Stewarts leaf blight, bo caused by the same bacterium, a discussed in a new Farmers' Bulle issued by the U.S. Department Agriculture.

This publication, "Bacterial W and Stewarts Leaf Blight of Corn was prepared by Dr. Alice L. Robe plant pathologist of the Depar ment's Agricultural Research Servi It supersedes a previous publicati on bacterial wilt issued in 1941.

Single copies of the bulletin (F 2092) may be obtained free from t Office of Information, U.S. Depar ment of Agriculture, Washington D.C.

KOREA GRANTS

(Continued from page 1)

origin fertilizer materials are the lo est cost delivered price.

Now trade sources with Japane connections say that the Korean go ernment will shortly make its nom nation of sellers under this $9 m lion contract.

For the balance of this fiscal ye there is on ICA budget a fixed a thorization on an additional $9 m lion for fertilizer for Korea. This do not include the intervening reque for a $20 million authorization.

Informed circles believe that, t international political situation bei what it is, the U.S. government w approve the $20 million request.

OAK WILT DISEASE

MORGANTOWN, W.VA. — Oa wilt disease, first discovered in We Virginia in 1951, is continuing attack state forests, R. P. True, We Virginia plant pathologist, repor He said that surveys this past sum mer turned up more than 1,000 de or dying oaks in 23 counties.

...ogram Set for ...w York Insecticide, ...ngicide Conference

ITHACA, N.Y.—Specific insect and ...ase pests of several crops, recom...ndations for control and applica... equipment and procedure will be ...ics discussed at the 17th Annual ...w York State Insecticide and Fun...de Conference and 8th Annual ...ticide Application Equipment Con...ence.

The sessions will be held here Nov. ... at GLF's Bibbins Hall, Terrace ... Sixty talks, ranging in time ...n 10 to 30 minutes each, are sched...d for presentation.

Discussions of specific pests and ...ops will take up the greater part ... the three-day program. Speakers ...ll be mainly New York experi...ent station personnel, with repre...ntatives of the agricultural chem...al industry also taking part.

Dr. Rosmarie von Rumker, director ... research, Chemagro Corp., New ...k, will speak during the morning ...sion on Nov. 9. Her subject will ..."Trends in Basic and Applied Re...rch in the Organic Phosphate ...ld."

"Responsibility of Industry Under ... Miller Amendment" will be dis...sed by Dr. R. H. Wellman, Car...e and Carbon Chemicals Co., New ...k.

Dr. Merrill Adams, Shell Chemical ...rp., Modesto, Cal., is to speak on ...evelopments in Application Equip...nt for Soil Pesticides." Dr. Well...n will address the conference dur... the Nov. 9 afternoon session, ...ile Dr. Adams will speak during ... morning session on Nov. 10.

The three-day conferences will be ...ened by W. I. Myers, dean of the ...w York State College of Agricul...e. Dean Myers will discuss briefly ...e Relationship Between Industry ...d the Land-grant Colleges."

Registration for the conferences ...ll take place Nov. 8 at 8:45 a.m. ...th the morning and afternoon pro...am on that day will be devoted to ...ect and disease controls on vegeta..., potato and small grain crops.

The Nov. 9 morning program in...des talks on livestock insect and ...ease controls. Also to be discussed ...ll be forage crop insects and florist ...d nursery pest controls. Fruit dis...se and insect controls will be taken ... during the afternoon.

Discussions on fruit insect control ...ll also make up the program during ... morning of Nov. 10. The after...on session will be given over to ...pers concerning application equip...nt, including mist concentrate ...raying.

A banquet will be held at the Hotel ...naca on the evening of Nov. 9. ...ght entertainment will follow din...r.

...ortheast Farmers Apply ...r Flood Relief Loans

BOSTON — The Small Business ...dministration has had applications ... loans totaling $7,460,564 from 394 ...siness and home owners in Massa...usetts and Rhode Island to recover ...m losses during the August floods. The agency said 281 loans, amount...g to $3,712,810 have been approved ... date. Business loans have a maxi...um maturity of 10 years and home ...ans can be extended 20 years. The ...ual rate of interest for disaster ...ans is 3% per annum.

The SBA had planned to close its ...ergency disaster loan field offices ... Nov. 1, but because of the sneak ...ctober storm which caused new ...od damage in the already hard hit ...eas the offices will continue to func...n.

IRRIGATION DISTRICT

LIBERAL, KANSAS—Farmers in ... counties have formed the South...st Kansas Irrigation Assn. Robert ... Joyce, Hugoton, is president.

TOLERANCES

(Continued from page 1)

million when used on the following raw agricultural commodities: alfalfa, apples, apricots, avocadoes, snap beans, beets (including tops), blueberries, brocolli, brussels sprouts, cabbage, cauliflower, cherries, clover, cranberries, cucumbers, dates, eggplants, grapes, kale, lettuce, mangoes, melons, mustard greens, onions (including green onions), passion fruit, peaches, peas, pears, peppers, pineapples, plums, potatoes, prunes, rutabagas, spinach, squash (summer and winter), strawberries, tomatoes and turnips, including tops.

At the same time, FDA approved a residual tolerance level for maneb (manganese ethylenebisdithiocarbamate) in line with the total amount of metallic dithiocarbamate as follows for raw agricultural commodities: Tolerance levels for maneb—7 parts per million on apples, beans, carrots, celery, cranberries, cucumbers, eggplant, figs, grapes, melons, onions, peaches, peppers, spinach, summer squash, tomatoes and winter squash.

In the case of almonds and potatoes, the residual tolerance level approved for maneb is 0.1 part per million.

In a parallel action by FDA in this residual tolerance field it reports a petition for a tolerance by the E. I. Du Pont de Nemours & Co. for the establishment of a tolerance level of 2 parts per million for a chemical compound consisting of 3-(3,4 dichlorophenyl),-1,1 dimethylurea in or on alfalfa and grass hay crops.

In its petition for approval of this tolerance level the applicant company recommends that hexane be used as a solvent.

Backed by USDA certification of usefulness, Food and Drug Administration came through with another residual tolerance level approval for sulphenone in use of apples, peaches and pears with a residual deposit of 8 parts per million.

This is an amendment to FDA approval for this product for other raw agricultural commodities. Authorization also includes the addition of sulphenone to previously approved residual tolerances for chlorinated hydro-carbons.

Wet, Dry Aerosol

CHICAGO—A new aerosol product for the home gardener which applies insecticide spray and fungicide dust on roses in one push-button operation was shown for the first time by the Du Pont Co. at the recent National Hardware Show at Navy Pier here.

ACQUIRES TRACT

NEW BRUNSWICK, N.J. — The New Jersey Agricultural Experiment Station has acquired a 73-acre tract of land in Ocean County for use in cranberry and blueberry research.

EASY TO APPLY . . . EASY TO SELL

Phosphatic Fertilizer Solution

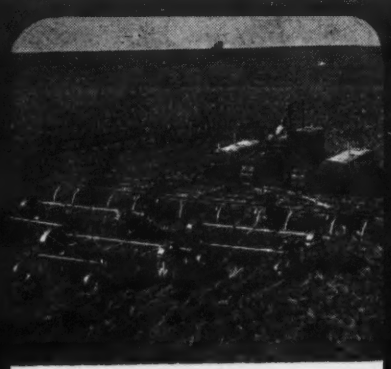
California Formulator Blends Monsanto's Solution with Aqua Ammonia to Make Neutral 8-24-0 for Direct Application

Mounted behind cutting blades for protection, slender hoses carry liquid 8-24-0 from tank into soil as fast as it is broken.

Side-dressing eight rows of carrots at a time is simple chore for this rig. Note twin tractor-mounted tanks for carrying 8-24-0 used by this fertilizing contractor. Formulator also sells direct to farmer, and does fertilizing on contract.

Fertilizer tank follows wide-spread drill rig. Set-up is particularly well suited to preplanting fertilization which may take place in either spring or fall in Sacramento-Imperial Valley-San Joaquin area where much of the 8-24-0 is sold.

New-type liquid fertilizer drill and tank arrangement gets trial. Formulator maintains sizable test area for trying out new liquid fertilizer applicators, and to observe results of various liquid fertilizer formulations on crop response.



Giant drill rig covers a lot of ground fast, gets through matted surface of field to inject 8-24-0 into root zone. Side mounting of these fertilizer tanks makes it possible to carry a full day's supply without delays for refilling.

8-24-0 is used on all varieties of crops. Here's a set-up that's ideal for applying it in close row work. The large fertilizer tank is mounted out of the way in the rear. Fertilizer drills located in front help driver guide tractor.

Photographs courtesy Brea Chemicals, Inc.

Formulator's customers don't need potash, so company makes 8-24-0. If your trade calls for a complete soluble fertilizer, Monsanto has the right ingredients:

Diammonium Phosphate . . . . . (21.0-53.8-00.0)
Monoammonium Phosphate . . . (12.2-61.6-00.0)
Phosphatic Fertilizer Solution . (00.0-54.5-00.0)
Dipotassium Phosphate . . . . . (00.0-39.9-53.0)
Monopotassium Phosphate . . . (00.0-51.6-34.2)

These compounds are highly concentrated—cost you less to store and handle. They're pure—give you extremely close control of formulation. And—your supply is assured by Monsanto, world's largest producer of elemental phosphorus. Write now for booklet "Concentrated Water Soluble Fertilizers" to MONSANTO CHEMICAL CO., Inorganic Chemicals Division, 710 N. 12th Boulevard, St. Louis 1, Missouri.

MONSANTO
CHEMICALS - PLASTICS

SERVING INDUSTRY . WHICH SERVES MANKIND

IMC Stockholders Hear Report of Satisfactory Year

NEW YORK—Despite the most unfortunate strike in the company's history as a phosphate producer, Louis Ware, president of International Minerals & Chemical Corp., told stockholders at the annual meeting Oct. 25 prospects for a satisfactory year seem promising.

Reviewing the fiscal year ended June 30, 1955, Mr. Ware referred to earnings of $6,321,903 compared with $6,043,979 for the previous year, which was equivalent to $2.55 per common share, compared with $2.44 for the year ended June 30, 1954.

He pointed out that the four-month strike in the Florida phosphate fields occurring as it did in the historically low sales volume season of the corporation's operations, resulted in losses during the last month of the past fiscal year and particularly during the first three months of the current fiscal year.

However, he said, "While the strike was damaging it was only of a temporary nature and we are rapidly getting back to normal." Continuing, he said, "I believe the chances are favorable for our being able to recoup some of our losses which together with improved and expanded operations in the new plants should result in earnings about as good as the previous year."

Stockholders reelected all directors and approved a stock option plan for employees, providing for the purchase of common stock of the corporation at a price not less than 90% of the market value on Oct. 27, 1955. The options are designed to qualify as restricted stock option as defined in section 421 of the Internal Revenue Code.

Stauffer Income, Net Sales Gain in First Nine Months

NEW YORK—Stauffer Chemical Co. has announced that net income for the first nine months of this year increased 44% to $6,475,000, or $2.75 per share, from $4,508,000, or $1.92 per share earned in the same period 1954. Net sales climbed to a record $79,704,000 from $64,174,000 last year.

Net income for the third quarter of 1955 was $2,347,000, or 99¢ per share, as compared to $1,581,000, or 67¢ per share during the corresponding period last year. Third quarter sales were $29,525,000 in 1955 as compared with $24,093,000 in 1954.

Stated income does not reflect Stauffer's equity in the undistributed earnings of Consolidated Chemical Industries, Inc., and other unconsolidated subsidiary companies.

Hans Stauffer, president, reported to stockholders that the demand for the company's products remains strong. He stated that construction of new production facilities at Omaha, Neb.; Tacoma, Wash; Le Moyne, Ala.; Vernon, Cal., and Reynosa, Mexico, was proceeding satisfactorily.

Sept. 19, the directors declared an increased quarterly dividend of 40¢ per share payable Dec. 1 to stockholders of record Nov. 17, 1955.

A special meeting of stockholders has been called for Nov. 10 to act upon the proposed merger of Consolidated Chemical Industries, Inc., into Stauffer Chemical Co.

MORE EXTENSION WORKERS

STATE COLLEGE, MISS. — Twenty-five counties in Mississippi have each received one or more additional extension workers since July 1 to assist primarily with the intensive Balanced Farm and Home Program.

William E. Jaqua

William E. Jaqua to Head Fertilizer Sales In West for Calspray

RICHMOND, CAL. — The appointment of William E. Jaqua to the position of western regional supervisor, fertilizer sales, was recently announced by C. E. Cody, western regional manager of the California Spray-Chemical Corp. of Richmond, Cal.

Mr. Jaqua will supervise fertilizer sales in the eleven western states. Calspray's program of expansion in fertilizers includes a new $16,000,000 fertilizer project now under construction in Richmond.

Before coming to Calspray, Mr. Jaqua had his own business. Previously, he worked for the U.S. Department of Agriculture as a section head out of the San Francisco office. Raised in Claremont, Cal., he attended Pomona College, Harvard University and the University of California at Davis. During World War II, Mr. Jaqua served in the Pacific theatre as a Lieutenant in the U.S. Navy.

Nine Month Earnings Of Atlas Powder Increases 36%

WILMINGTON — Atlas Powder Co.'s net earnings after taxes for the first nine months of 1955 were $2,558,903, a 36% increase over the $1,880,646 earned in the like period last year, according to the company's interim report being prepared for stockholders.

Sales and operating revenues for the 1955 period totaled $45,160,032, or 5% above the $43,093,306 reported for the first three quarters of 1954.

After preferred dividends, the nine months' earnings this year equalled $3.44 a share on each of the 725,245 shares outstanding Sept. 30, 1955. The 1954 nine months' earnings equalled $2.97 a share on the 565,837 common shares outstanding Sept. 30 a year ago.

Consolidated Chemical Sales and Earnings Reach Record High

NEW YORK — Record sales and earnings were achieved by the Consolidated Chemical Industries, Inc., in the first nine months of this year. Net sales for the nine months ended Sept. 30, 1955, were $26,505,000, an increase of 14.8% over net sales of $23,079,000 for the same period in 1954.

Net earnings, after provision for federal income tax, for the nine months ended Sept. 30, 1955, were $3,243,000 or $9.27 per share, an increase of 16.8% over earnings of $2,776,000 or $7.93 per share for the nine months of 1954.

Spencer Chemical Sales Show Gain In Third Quarter

KANSAS CITY—Sales of Spencer Chemical Co. in the quarter ended Sept. 30, the first in its fiscal year, were nearly 1 million dollars greater than a year ago, and the gain was due entirely to polyethylene, which the company began producing at the new Orange, Texas, works this year. Sales for the quarter amounted to $7,717,696, compared with $6,754,159 a year earlier.

Notwithstanding the increased volume from polyethylene, the new product did not make any contribution to net income during the last quarter, Kenneth A. Spencer, president said. He stated that the polyethylene project is moving through its developmental period involving numerous trial runs by customers, but that the product is receiving excellent market acceptance and should show a profit for the fiscal year.

Net income for the three months ended Sept. 30 was $564,068, equal after preferred dividends, to 37¢ a share on the outstanding 1,124,855 shares. In the like 1954 period the net income was $661,155, or 51¢ a common share.

Before income taxes of $571,000 the net was $1,135,068, while a year ago the pre-tax net was $1,312,155.

Operating expenses and depreciation charges for the quarter, were well ahead of a year ago, the former partly reflecting the polyethylene project, and the latter the substantial increase in production facilities during the last twelve months.

Sales, Income of American Potash Up In First 9 Months

LOS ANGELES — Operations of American Potash & Chemical Corp. in the first nine months of 1955 resulted in sales and net income substantially higher than in the corresponding period last year, Peter Colefax, president, said recently in a report to shareholders.

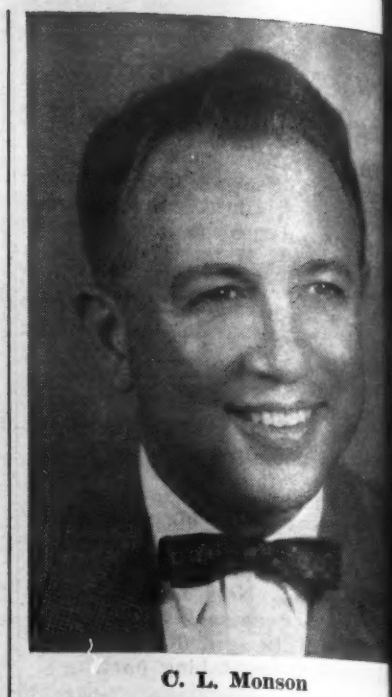
Sales for the nine months ended Sept. 30, 1955, totaled $20,354,720, an increase of $2,399,727 over the $17,954,993 reported for the same period in 1954.

Net income amounted to $2,852,427 equal after deducting preferred dividend requirements to $4.55 per share on the 588,565 shares of Class A and Class B stocks outstanding. For the nine months ended Sept. 30, 1954, net income was $1,784,673 equal after preferred dividends to $3.23 per share on the 463,838 shares then outstanding.

Mr. Colefax told shareholders operations in the third quarter of 1955 continued at very satisfactory levels with respect to both production and sales. For the three months ended Sept. 30, sales were $6,525,866 compared with $6,018,039 in the same period of 1954. Net income was $1,004,529 or $1.61 a share on 588,565 shares after deducting preferred dividends against $694,379 or $1.29 a share on 463,838 shares in the third quarter of 1954. Earnings in the 1954 period included $148,000 of non-recurring income after taxes from the sale of housing at the company's Trona, Cal., plant.

The report stated that construction of the $6,600,000 lithium chemical plant of American Lithium Chemicals, Inc., at San Antonio, Texas, is now scheduled for completion late this November approximately a month ahead of the original target date. American Potash holds a 50.1% interest in American Lithium Chemicals, Inc.

The line of organo-boron compounds which the company is developing through its research program is creating trade interest, Mr. Colefax said.



C. L. Monson

C. L. Monson Named Spencer Product Sales Supervisor

KANSAS CITY — C. L. "Chuc Monson, Spencer Chemical Co.'s ag cultural sales representative for Io during the past five years, has be promoted to the post of product sa supervisor. Mr. Monson will work rectly under Claude Byrd, Spence agricultural chemicals sales manag

A native of Wichita, Kansas, M Monson was in the feed and fertiliz business there with his father pri to joining Spencer in 1948. His fi sales territory with Spencer was the Georgia-Alabama-Florida area.

A 1941 graduate of Friends U versity, Wichita, Mr. Monson was IBM supervisor for Boeing Aircra prior to entering the Navy in 194 He served as a communications o cer and was discharged in 1946 wi the rank of lieutenant, j.g. Mr. a Mrs. Monson have two daughte ages 4 and 5, and a 10-year-old s They will make their home in Kans City.

Diamond Alkali Sales, Earnings Reach New High in First 9 Months

CLEVELAND—Sales and earnin of Diamond Alkali Company, Clev land, showed substantial gains f the first nine months of 1955 over t same period of 1954, it was report Oct. 24 by John A. Sargent, presider

Both net sales and earnings scal the highest levels in the company 45-year history. Net sales register a 17% gain and net income per co mon share showed a 43% increa for the first nine months of 19 over the same period in 1954, M Sargent said.

Net sales for the nine months en ed Sept. 30, 1955, totaled $82,888,24 against $70,988,638 for the same p riod last year.

Net income, after taxes, for t current nine-month period was $6 255,846 which after preferred sto dividend, is equivalent to $2.58 p share on the 2,270,393 shares of co mon stock issued and outstandin as compared with $4,477,861 or $1. per share for the first nine mont in 1954, as restated to reflect t average federal income taxes a certain other items in 1954.

Pest Exhibit

COLUMBIA, S.C.—Information c crop pests and methods for the control was the theme of the annu exhibit of the Clemson Extensio Service at the South Carolina Sta Fair Oct. 17-22. Stressing control cotton pests, the exhibit included re licas of two fields, one where prope control measures were carried ou the other where no controls wer used.

...u Pont Realigns ...ales Organization ... Polychemicals

WILMINGTON—A realignment of ...les organization has been an...unced by the Polychemicals De...rtment of the Du Pont Co.

Elmer F. Schumacher continues to ...ad up the sales divisions as gen...al director of sales, but immedi...ely under him will be two direc...rs of sales, one heading up the ...les development and service ac...vity in industrial chemicals and the ...her in charge of the like organiza...on in the plastics field.

John H. Daughtridge and Russell Weigel, formerly assistant direc...rs of sales of the department, are ...omoted to directors of sales. Mr. ...aughtridge will oversee the sales ...d technical service organization ...ncerned with chemicals like metha...l, ammonia, anti-freezes, nitrogen ...oducts and other such products of ...gh-pressure synthesis. Mr. Weigel ...ill be in charge of the sales and ...chnical sales service organization ...ncerned with plastics.

Three assistant directors of sales ...ere appointed. Arthur M. Cole, for...erly manager of sales to the wood, ...ubber and adhesives industries, was ...romoted to assistant director of ...ales in the industrial chemicals field. ...erry D. Shaw, formerly manager of ...lastics sales, was named an assis...ant director under Mr. Weigel to ...ead the staff concerned with "Teflon" tetrafluorethylene resin, "Tynex" nylon filament, "Butacite" polyvinyl butyral resin, "Plastacele" cellulose acetate plastic, and such products. C. D. Bell continues as an assistant director under Mr. Weigel to head up the organization con...erned with plastics such as "Lucite" ...crylic resin, "Zytel" nylon resin, and "Alathon" polyethylene resin.

In the chemical sales division Frank G. Keenen, formerly manager, nitrogen products sales section, will become product manager for am...monia and related products, effec...tive Nov. 1.

Francis M. Jornlin, who was assist...ant manager of nitrogen product ...ales, will become manager of that ...ection, while Myers F. Gribbins, who was Philadelphia district man...ager of the same section, will be...come his assistant.

William W. Beck will become act...ing manager of sales training and personnel. He formerly assisted in this training work.

Monsanto Sales Show Gain of 22% in First Nine Months

ST. LOUIS—Sales of Monsanto Chemical Co. and its consolidated subsidiaries for the first nine months of 1955 were $307,679,198, an increase of 22% over the sales of $252,636,332 for the corresponding period in 1954.

Net income for the nine months period in 1955 was $23,581,647, compared with $16,635,642 for the first nine months of last year. After provision for preference dividends, 1955 income was equivalent to $1.45 a common share on the 15,935,662, $2 par value shares outstanding prior to the Lion Oil Co. merger. Earnings a common share for the similar period in 1954, adjusted for the recent three-for-one split of stock, were equal to $1.02.

Sales and earnings for Lion Oil Co. are not included in the above figures, as the closing of its books has been delayed due to the winding up of the corporate affairs as a result of the merger into Monsanto.

BUYS FARM

FORT COLLINS, COL.—Colorado A&M College has purchased the 80-acre farm of Sam Portner near here for use as a horticultural farm.

Lee R. Hansen

Olin Mathieson Makes Appointments; Two New Grades Available

LITTLE ROCK, ARK.—Three new appointments have been announced by the Western Fertilizer Division of Olin Mathieson Chemical Corp. The division also has announced the availability in the Southwest of two new high analysis fertilizers.

Lee R. Hansen has been named sales supervisor of the division's Pacific Northwest area, which includes Oregon, Washington and Idaho. Wilbur T. Kelsey has been named sales supervisor of northern California. Both men will be responsible for sales of Ammo-Phos fertilizers, agricultural chemicals, grain fumigants, sprinkler irrigation systems and new products in their areas.

Dr. Victor L. Sheldon, formerly assistant professor of soils at the University of Missouri, has joined the agronomy staff of the corporation's Western Fertilizer Division, Sam L. Nevins, division vice president, announced.

Mr. Hansen, who will have headquarters in Portland, Ore., is a 1937 agronomy graduate of the University of Nebraska. He received his master's degree in agronomy in 1939 at Oregon State College, where his thesis was a study of "Ecological Fertilization and Cultural Studies of Management of Pastures" and of "Root Development and Taxonomic Characteristics of Bent Grass."

Prior to joining Olin Mathieson, Mr. Hansen was assistant professor of agronomy in Oregon State College, assistant division sales manager for Pacific Coast Borax Co. and manager of agricultural chemistry department for L. H. Butcher Co. in Portland, Ore., for the Pacific Northwest. Mr. Hansen served as agronomist, officer in charge of Camouflage and Agricultural Division, Pacific Command, with the U.S. Navy during World War II.

Mr. Kelsey will reside in San Mateo, Cal. A graduate of the University of Illinois, he taught vocational agriculture for three years prior to joining the staff of Olin Mathieson Chemical Corp. April 1, 1952. Since then, he has been area sales supervisor of Pima and Santa Cruz counties in Arizona.

Wilbur T. Kelsey

Dr. Sheldon will serve as agronomist for the company's north central district which has headquarters at St. Louis. A graduate of the University of Missouri, Dr. Sheldon received his master's degree in soils in 1948 and his doctorate in plant physiology in 1950. His doctoral thesis was a study of the effect of soil fertility on the production of protein in forage plants.

For the past three months he has studied the use of radioactive elements for soil fertilizer and biological research at the Oak Ridge Institute of Nuclear Studies of the Oak Ridge National Laboratory. In addition he established a program for the study of the effect of radioactivity on soil microorganisms.

Dr. Victor L. Sheldon

An artillery officer in the Army reserves, Dr. Sheldon served in command and staff in both World War II and the Korean conflict. His new residence will be in Kirkwood, Mo.

G. A. Wakefield, director of sales of the Western Fertilizer Division, announced that the company now is producing a 16-8-8 ratio and a 15-30-0 ratio for the Southwest area.

Both ratios are pelletized, water-soluble Ammo-Phos for fertilizers, Mr. Wakefield said, produced at the company's pioneer high analysis fertilizer plant at Pasadena, Texas. They are available in bulk quantities and in 80-lb. bags through Olin Mathieson dealers.

Olin Mathieson is the sole producer of 16-8-8, which was approved recently by the Texas state chemist and A&M College for use on Texas soils, he said.

New Iowa Firm

CLEAR LAKE, IOWA—Chao-Perkins, Inc., a plant breeding and insect control firm, has been incorporated here. John H. Perkins is president, and S. John Chao is vice president, secretary and treasurer.

BURLEY SITUATION BETTER

LEXINGTON, KY.—The economic situation for burley tobacco is brighter than at this time a year ago, says the Agricultural Economics Department of the University of Kentucky. The crop is estimated at around 500 million pounds, compared to 667 million pounds in 1954.

Looking for HIGHER PROFITS...

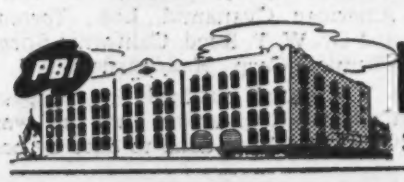
TAKE A GOOD LONG LOOK AT PRIVATE LABELS

Now is the time to take a good long look at *your* position in *your* market. If *you* and your competition are "butting heads" trying to sell the same lines to the same customers in the same territory ... then *you owe it to yourself* to investigate *Private Labels!*

Through private labeling *you* are assured an exclusive on your high quality line in your market ... *your customers can't reorder from anyone but YOU!*

Private Brands, Inc., *is ready with a complete service to reach higher profits! It will pay you to take a good long look at* Private Labels.

Write, Wire, Phone for Particulars



PRIVATE BRANDS, INC.

300 S. THIRD—DEPT. CL-4—KANSAS CITY, KANSAS

CANADIAN MEETING

(Continued from page 1)

tural chemicals industry in the next decade.

There will be better knowledge available in the future for protection of plants against diseases and plant pathologists will contribute to better plant disease control.

Mr. Chagnon, who spoke at the annual banquet of the association, said that chemical discoveries will accelerate plant breeding and new industrial uses will be found for agricultural products. Plant protein, for example, will form a larger part of the human diet following extraction and processing. The number and importance of synthetic and tailormade foods will increase tremendously if man succeeds in unraveling the secrets of nature such as photosynthesis.

The speaker referred to the work of Canada's federal government in protecting both manufacturers and farmers against unfair trade practices. Chemical residue on foodstuffs is also being watched carefully and tolerances are now being worked out between the Department of National Health and Welfare and the agricultural chemical industry.

Mr. Chagnon urged field men to be simple and frank with farmers, and pass on all the information required even if the field man does not sell the products needed.

In his report to the annual meeting at the opening session on Oct. 13, M. F. Anderson, the retiring president, traced the work of the various association committees during the preceding year. He praised the efforts of the membership committee and stated that membership in the association now stood at 39.

Mr. Anderson reported that the legislative committee had had a busy year as a result of the proposed Canadian legislation on administrative tolerances for insecticide chemicals applied to or included in foodstuffs. The proposed legislation stemmed from the Miller Amendment in the U.S. and he expressed his appreciation for the assistance extended to the legislative committee by the National Agricultural Chemicals Assn.

Mr. Anderson stated that the work of the publicity committee had expanded greatly over the past 12 months and he paid special tribute to the services rendered to the industry by the members of the technical section.

He reported that the traffic committee would undertake a survey of present railway and truck movements of agricultural chemicals as a preliminary to efforts to improve the present freight rates applicable to the industry.

Ramsay G. Smith
Elected CACA President

One of the features of the two-day program was a panel discussion on "Chemical Control of Weeds and Brush in Canada," under the chairmanship of Dr. L. H. Shebeski, Division of Plant Science, University of Manitoba, Winnipeg.

Panel members included J. W. Suggitt of The Hydro-Electric Power Commission of Ontario; H. F. Stairs of the New Brunswick Department of Agriculture; H. W. Leggett of the Canada Department of Agriculture Experimental Station at Regina, Saskatchewan, and J. J. Neilson of the Western Ontario Agricultural School.

Mr. Suggitt traced the rapid expansion of chemical brush control by utilities over the last six or seven years and predicted that the increased use of chemicals for this purpose would be one of the outstanding maintenance developments of the next decade as far as utilities were concerned. He stated that the greatest potential market in Canada for growth control chemicals would be the railroads with their large acreages of brush-covered right-of-way.

Mr. Stairs said that New Brunswick farmers who have used 2,4-D in controlling weeds in their fields have increased the sale value of their farms tremendously.

Mr. Leggett said that "the future of chemicals for weed control is particularly bright. We are spraying less than one-third of the total acreage in Western Canada seeded to cereal crops. I believe that at least 30 million acres could be profitably sprayed each year. I have shown that even infestation from one to 20% will reduce the yield from three to four bushels per acre and that is certainly enough saving to leave a comfortable profit after paying for the chemical."

Ontario and Quebec farmers have been more conservative than prairie farmers in their acceptance and use of herbicides, Mr. Neilson said. However, according to Mr. Neilson, farmers in central Canada are beginning to recognize the great savings that can be effected by the proper use of herbicides. He quoted Ontario Department of Agriculture statistics to show that in that province in 1953 the value of field crops was increased by as much as $300,000 by spraying.

Eric L. Barry, assistant to the president, Canadian Paint Varnish & Lacquer Association and Arthur G. Pinard, executive vice president of The Sherwin-Williams Co. of Canada, Ltd., concluded the first day's sessions.

Mr. Barry emphasized the importance of the trade association as a factor in modern business life and the role which it could play in building good public relations for an industry.

Mr. Pinard urged a fresh approach to marketing unfettered by past performances. He called on the industry to exert every effort both individually and collectively to expand its existing markets.

The second day's program began with a panel discussion on "The Setting of Administrative Tolerances for Insecticides in Canada."

Chairman was Dr. E. P. Aikman of The Nichols Chemical Co., Ltd. Panel members included M. G. Allmark of the Department of National Health and Welfare, Ottawa; P. M. Overholt, Department of Agriculture, Ottawa; A. T. Sinclair of North American Cyanamid, Ltd., Toronto, and Dr. W. T. Reed, California Spray-Chemical Corp., Haddonsfield, N.J.

The panel outlined the proposed Canadian legislation and the work which had been done to date by both government and industry. Dr. Reed commented on the Miller Law as it is presently functioning in the U.S.

Concluding speakers were Dr. J. A. Evans of E. I. du Pont de Nemours & Co., who spoke on his company's recent developments in agricultural chemicals, R. R. Wangerin of Monsanto Chemical Co., who traced his firm's over-all development program and C. W. Gates of Naugatuck Chemicals, division of Dominion Rubber Company, Ltd., who presented a paper on "Thioneb Fungicides."

CANADIAN MEETING—Nearly 200 representatives of Canadian and American firms attended the 3rd annual meeting of the Canadian Agricultural Chemicals Assn. at Ste-Adele-en-haut, Que. Oct. 13-14. The top picture shows the officers and directors who were appointed at the meeting. Seated, left to right, A. W. Hutchison, Shell Oil Co. of Canada, Ltd., Toronto, director; Dr. E. P. Aikman, Nichols Chemical Co., Ltd., Montreal, 1st vice president; Ramsay G. Smith, Charles Albert Smith, Ltd., Toronto, president; K. L. Owens, Monsanto Canada, Ltd., Montreal, 2nd vice president; Merle E. Ward, Du Pont Co. of Canada, Ltd., Toronto, secretary; M. F. Anderson, Naugatuck Chemicals, division of Dominion Rubber Company, Ltd., Montreal, past president.

Standing, left to right, S. R. Stovel, North American Cyanamid, Ltd., Toronto, director; P. E. Redman, National Grain Company, Ltd., Winnipeg, director; R. M. Ferguson, Dow Chemical of Canada, Ltd., Winnipeg, director; J. H. D. Ross, Canadian Industries (1954), Ltd., Montreal, director; J. L. Elliott, Rohm & Haas Co. of Canada, Ltd., Toronto, treasurer.

The middle picture shows the panel which dealt with the chemical control of weeds and brush in Canada. Left to right, H. F. Stairs, assistant in the Field Husbandry Branch of the New Brunswick Department of Agriculture; H. W. Leggett, superintendent of the Canadian government's experimental station at Regina, Sask.; Dr. L. H. Shebeski, chairman of the panel, Division of Plant Science of the University of Manitoba; J. J. Neilson, extension specialist and instructor, Western Ontario Agricultural School, and J. W. Suggitt, supervising chemist in the chemical research department of the Hydro-Electric Power Commission of Ontario.

The bottom picture shows the panel which discussed the setting of administrative tolerances for insecticides in Canada. Left to right, P. M. Overholt, associate chief (pesticides) in the plant products division of the Canadian Department of Agriculture; M. G. Allmark, food and drug director ate of the Canadian Department of National Health; Dr. Aikman, chairman; Dr. W. T. Reed, California Spray-Chemical Corp., Haddonsfield, N.J., and A. T. Sinclair, North American Cyanamid, Ltd.

Special Retail Section

Better Selling

Richer Fields for Dealers

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

ALES BY TELEPHONE — Laban Wenger, operator of Horst's Mill in chaefferstown, Pa., believes that the telephone is his best and most economal sales tool. He keeps records and sales information available on the elephone table so that he can give quick answers to customer queries. Use f the telephone helps ease the way for personal visits, Mr. Wenger says.

EASY, ECONOMICAL

Telephone Is Valuable Sales Tool for Pennsylvania Dealer

The telephone is the fertilizer dealr's easiest and most economical sales ool—and it is used to its fullest exent by Laban Wenger who operates Horst's Mill, Schaefferstown, Pa.

"The easiest and cheapest way for s to ferret out prospects for our rtilizers is to contact them by telehone," relates Mr. Wenger. "We can o as much contacting by phone in ne day as we can by personal conact in a week, and wind up with ven more business. As a result, we ave more time to devote to other ill operations, such as filling orders, andling over-the-counter business nd talking to salesmen."

In central Pennsylvania, the ferilizer dealer has two main seasons or selling fertilizer each year, spring nd fall. In between these periods, armers buy fertilizer on a more imited basis and if sizeable sales olume is to be chalked up, more ustomers must be sold. And the elephone provides the fertilizer dealr with an important instrument in btaining this volume.

"Right before spring and fall we will spend more time in the field because farmers buy in large quantities, and we have to be on hand to see that they order the proper type of fertilizer in the proper quantities," says Mr. Wenger. "On the other hand, they want to know our price and make comparisons, so personal visits at this time are quite important.

"However, we can't afford to make round of all these customers just or this purpose. If we did, we ouldn't see half of our most imortant customers and wouldn't see otential customers. So even with our egular customers we rely upon the elephone to lay the groundwork for ur meetings."

Mr. Wenger uses the telephone to et up appointments to meet the armer. Doing business in a rural area means driving miles between customers and it is this travel time that Mr. Wenger wants to overcome. It's discouraging and a very heavy loss of time to drive out to a farm house only to find the farmer out. So even for regular customers, Mr. Wenger calls first—then visits next.

When it comes to selling prospects on his fertilizer, Mr. Wenger finds the telephone an invaluable tool. It may take from six to a dozen contacts with prospects before they decide to use his fertilizer and contacts other than those being made by telephone are considerable time losses. The road is paved by holding several preliminary conversations with the prospects by phone and then setting up an appointment. By then,

(Continued on page 14)

SHOP TALK

OVER THE COUNTER

FOR THE DEALER

By EMMET J. HOFFMAN

Croplife Merchandising Editor

Unusual indeed is the farm chemical business that is not invited once a month or oftener to make a contribution to a charitable drive, purchase supper tickets from a local club, society or service group, join an organization, or assist financially with some civic undertaking.

Certainly these are all worthy causes and much good is accomplished by them. Americans are willing givers and perhaps that is why so many financial appeals are made to them.

However, a dealer realizes that he cannot support every cause, at least not to the extent that he would like, no matter how successful he is in business. He has to draw the line some place.

How can the dealer politely say "no" to these requests without incurring possible misunderstanding from those who seek his support?

Keep Requests in Line

An operating budget is one of the ways of keeping the multitude of contribution requests in line. Certainly this alone would not justify the time and study involved in setting up an operating budget. The reasons for having one are obvious to any dealer and most are much more important than to place a check rein on contributions.

Nevertheless, once a budget has been established, whether it is for a year, a half-year or for a quarter, it functions as a control. One of the practical applications of the budget plan is the pre-planning of funds for contributions. In the budget you can pre-plan the amount of money you wish to set aside for certain donations and all the various worthy causes.

If you get requests not allowed in your budget it permits you in clear conscience to say that "I'm sorry, but our budget will not permit us to help you this year." Isn't it better than to have to say, "Another drive. Well, I just won't

(Continued on page 13)

Vermont Launches 1956 Agricultural Conservation Program

BURLINGTON, VT. — Meetings have launched the 1956 Agricultural Conservation Program in all Vermont counties.

The total allocation of program funds for the 1956 ACP is $1,069,000, a little more than the amount available in 1955. In general, the practices for 1956 are very similar to those of 1955 with a few exceptions.

For the liming practices, if it is not practical for a farmer to put on the entire application of lime needed in 1956, cost-sharing is authorized for partial application annually of the minimum required application until the full amount needed is applied.

Under practices 2 and 3, mixed fertilizer may be used under the program only for the following uses:

Initial seeding of biennial or perennial legumes and/or top-dressing seedings established under practice 2 of the 1955 ACP. Mixed fertilizer may also be used for the initial improvement of permanent pastures.

Superphosphate can be used on the farm if it is combined with stable manure.

New England Recovers From Season's Second Flood

NEW YORK—Major railroad and highway arteries in the Northeastern states were battered again by floods for the second time within two months. Torrential rains, which began Oct. 14 and continued for three days, wiped out much of the repair work since the August flood disaster and spread damage and loss of human lives to areas not affected by the previous storm.

Connecticut again was hit most seriously. The southwestern portion of the state, including Fairfield County, counted the highest toll in lives lost and property damaged. Since the county is made up primarily of industrial and residential districts, agricultural losses are expected to be only a fraction of what they were after the August storm.

Most concern is being expressed over the disrupted transportation facilities. The New York, New Haven & Hartford Railroad's four-track New York to Boston main line was cut in two between Stamford and Norwalk by washouts and a freight train derailment at Darien, Conn.

The year's second flood here set back repairs on the railroad's branch lines damaged in August and disrupted service on additional branches. In the Naugatuck River Valley, a railroad span at Waterbury just rebuilt and completed on Oct. 12 was swept away two days later. The Norwalk, Conn., to Pittsfield, Mass., and Derby, Conn., to Maybrook, N.Y., lines were also cut off in spots by landslides and washouts.

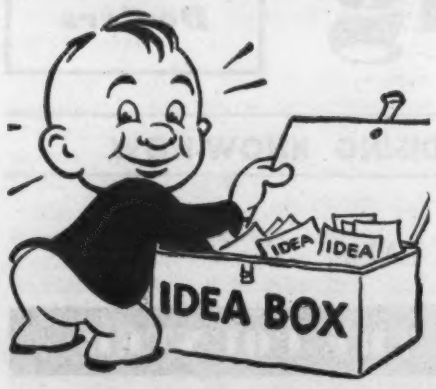
The Naugatuck Chemical division of United States Rubber Co., at Naugatuck, reported some damage was caused by flooding in its plant. However, damage was not as serious as in August. One company official said the division would lose only a few days' production.

Further disruption of rail facilities at Derby, Conn., has made it necessary for Naugatuck Chemical to continue its truck shuttle system to the New Haven Railroad's main track. Repairs to branch lines and sidings damaged in August had been expected to be completed by Nov. 1. E. S. Ebers, general sales manager of Naugatuck Chemical, said flooding was not of the "flash" type as in August. The firm had sufficient time to complete precautions against more serious damage, he said. Production was hampered by lack of electricity.

The New York Central Railroad was perhaps the only other railroad with severe curtailment of service. Its lines along the Hudson River, particularly the Putnam division, suffered from flood effects.

The transportation picture was further dimmed by the poor condition of main highways. The Boston Post Road, U.S. 1, which services the greater part of trailer truck shipments from points below and West of New York to Boston and other upstate New England areas, was inundated and cut off in several places between New York City and Bridgeport, Conn. Detours were necessary at many spots and heavy trucks were

(Continued on page 16)



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6337—Absorptive Bulking Agent

A new line of synthetic calcium silicates trade-named "Micro-Cel" has been announced by Johns-Manville Corp. The material has been proven as an absorbent-grinding aid for high liquid concentrate insecticide wettable powders and as an anti-caking

agent in fertilizers and insecticide dusts, according to the manufacturer. The makers say it will absorb one to 2½ times its weight of liquids and still remain a free-flowing powder. (See photo which shows a graduate of water being added to the product with the result that the product will still flow.) Bulk density ranges from five to 15 lb./cu. ft., according to grade. Fast, uniform blending without segregation is listed as one of its characteristics. The material is inert, with a pH range of 8.0 to 10.0. For more details, check No. 6331 on the coupon and drop it in the mail.

No. 6336—Applicator

The Pollard Manufacturing Co. has developed a new anhydrous ammonia applicator called the "Nitrogen Prince." The company announcement states that the applicator has "a new and revolutionary design embodying a new application of weight transfer." The new applicator has two wearing surfaces which "make for low upkeep and fast power saving operation," it is claimed. An added feature is adjustable ground wheel spacing as well as adjustable knife spacing. Standard on this machine are 1¼ in. double coil spring shanks, fast ball hitch coupling and special alloyed and hardened knives. For further details check No. 6330 on the coupon and mail it to Croplife.

No. 6332—Brochures

The Elsevier Press, Inc., has announced the availability of three brochures describing publications of technical interest. They are: 1. A 52-page brochure describing in detail Elsevier's Encyclopaedia of Organic Chemistry. The encyclopaedia, 14 volumes now published, is an exhaustive, comprehensive description of carbon compounds — their chemical, physical and chief physiological properties. 2. A 30-page catalogue of Elsevier's Scientific and Technical Publications. 3. An eight-page brochure describing Elsevier's Chemistry of Carbon Compounds series. Secure the brochures by checking No. 6332 on the coupon and mailing it to Croplife.

No. 6333—Field Speedometer

An all-purpose field speedometer is now being offered by the O. W. Kromer Co. The speedometer can be used to run on the ground or off a smooth tire. It comes complete with a drawbar hitch. The unit can be attached to all types of farm equipment and is claimed to give precise measurement in tenths and hundredths of a mile. It registers all speeds from 0 to 10 m.p.h. and records miles up to 10,000 miles. More complete information may be secured by checking No. 6333 on the coupon and mailing it.

No. 6335—Vehicles For Toxicants

Literature concerning vehicles for agricultural toxicants has recently been prepared by the Soluble Products Co. The firm's line, known as Aquacels, is described as non-toxic powders, instantly soluble in cold water, always uniform and 100% active. Effectiveness with seed protectants, insecticide sprays, wettable powders and dusts, nursery stock dip coatings and other agricultural toxicants is claimed. A bulletin on recommended Aquacels for use with various types of agricultural toxicants, together with the conclusion of a typical research laboratory report will be supplied without charge. Merely check No. 6335 on the coupon and drop it in the mail to Croplife.

No. 6331—Stabilizer

The Velsicol Chemical Corp. has available a new product called Deactivator "E" for stabilizing endrin-parathion dusts. Tests leading to the production of this product were conducted by Velsicol's research department working in collaboration with the American Cyanamid Co. Deactivator "E" is recommended only for use in endrin-parathion blends; it is not intended for use with endrin alone, the company states. The deactivator should be used only with those carriers and diluents that have been tested and found satisfactory by Velsicol chemists. A list of the carriers and diluents, together with formulation details, is available in bulletin No. 509-2 titled: "Suggested Formulations For Endrin-Parathion Dusts." Secure it by checking No. 6331 on the coupon and mailing it.

No. 6330—Spray Method

Developments in the Hose-Mix spray guns and pellets for pest and plant disease control have been announced by their manufacturer, International Research Corp. The company's method of spraying uses a light-weight, unbreakable gun which attaches to an ordinary garden hose. Normal water pressure will send out a stream 20 ft. or more, it is claimed. A nozzle on the gun makes the spraying action adjustable from mist to a stream for high shrubs and trees. Chemicals which make a complete spray formula are supplied in pellet form in fiber containers. The Hose-Mix't gun does the mixing. Pellets are poured into the mixing chamber. Secure more details by checking No. 6330 on the coupon and mailing

No. 3798—Concrete Floors

"The Care and Maintenance of Concrete Floors" is the title of a 12-page booklet just released by the National Sanitary Supply Assn. The problems of "dusting" and "blooming" are explained and suggestions for overcoming them are outlined. Cleaning, finishing and daily maintenance tips are set forth. The booklet is available without charge and may be obtained by checking No. 3798 on the coupon and dropping it in the mail.

No. 6325—Soils Handbook

The Davison Chemical Co., Division of W. R. Grace & Co., has published a 32-page handbook on "Soils, Phosphates and Fertilizers" by Vincent Sauchelli, the company's agronomist. It deals with fertilizer chemistry in laymen's terms, and is addressed, in the author's words, to "salesmen, farmers, and laymen in general." It give in simple, understandable language some essential, practical information on the feeding of soils and crops." Mr. Sauchelli discusses kinds of soil, what soils contain moisture supply, water requirements of crops, controlling soil moisture, how plants feed, chemical fertilizers and soil fertility, plant constituents, plant nutrients, humus, commercial fertilizers and soil amendments, secondary and trace elements, using fertilizers, fertilizer materials, phosphates and the relative value of phosphatic fertilizers. Secure the handbook by checking No. 6325 on the coupon and mailing it to Croplife.

No. 6329—Boom

The John Blue Co. has available a new boom for applying nitrogen solutions such as Solution 32. The new boom is 21 ft. wide and when used with the Blue model "NSF" solution pump, up to 50 gallons of solution per acre may be applied. The company announcement states: "All solution is carried by hose and all fittings and orifices are constructed of non-corrosive materials. The orifices are spaced every 12 in. to give even coverage and they are designed to give a straight uniform stream to reduce

Send me information on the items marked:

☐ No. 3798—Concrete Floors	☐ No. 6328—First Aid Kit
☐ No. 5300—Display	☐ No. 6329—Boom
☐ No. 5309—Accounts Receivable	☐ No. 6330—Spray Method
☐ No. 6318—Earth Borer	☐ No. 6331—Stabilizer
☐ No. 6321—Portable Sprayer	☐ No. 6332—Brochures
☐ No. 6322—Nozzles	☐ No. 6333—Field Speedometer
☐ No. 6325—Soils Handbook	☐ No. 6335—Toxicant Vehicles
☐ No. 6326—Ammonia Converter	☐ No. 6336—Applicator
☐ No. 6327—Spray Catalog	☐ No. 6337—Absorbent Agent

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COMPANY .....

ADDRESS .....

CLIP OUT — FOLD OVER ON THIS LINE — FASTEN (STAPLE, TAPE, GLUE) — MAIL

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MINNEAPOLIS, MINN.

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P. O. Box 67,

Reader Service Dept. Minneapolis 1, Minn.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

liage burn when ammonium nitrate lutions are used. Where fan type zzles are desired it is a quick and sy matter to install them on the om as all threads are standard pipe ze." Boom attachments are avail- le for several of the company's ailer type applicators or the boom ay be obtained as a separate item r "custom mounting." To secure ore complete details check No. 6329 the coupon and mail it.

No. 5300—Display

The American Scientific Laboraries announces new packaging for s product, Banarat Bits. Each case 12 1-lb. bags of this warfarin rat iller is now supplied in duplex ship- ng cartons. The carton is printed side and out so as to become a erchandising unit when opened. It convenient for counter or island splay. Secure more complete details checking No. 5300 on the coupon nd dropping it in the mail.

No. 6328—First Aid Kit

Neutralize is the trade name of a roduct contained in a first aid kit repared by the E. D. Bullard Co. for se on persons who have come in irect contact with anhydrous or quid ammonia. Company spokesmen aid: "Neutralize, a colorless, odor- ss liquid, will counteract the effects f ammonia immediately. It is es- ential only that the product be oured directly into the eyes or over he skin. It is packaged in 4-oz., un- reakable polyethylene. There are 4 ottles of Neutralize in each Bullard mmonia first aid kit. In addition here are 11 unit first aid packs in he kit, containing such things as auze pads and absorbent compresses, issors, eye dressing equipment, and Merthiolate, in the new Uni-Drop ispenser. Complete information for pecific first aid treatment of am- nia victims is included in each etal kit." Secure more details by hecking No. 6328 on the coupon and ailing it.

No. 5309—Accounts Receivable

"Simplified accounts receivable for etailers" (SARR) is described in an -page folder released by Remington and. Based on the company's "sim- lified unit invoice accounting plan" SUIAP), "simplified accounts re- eivable for retailers" uses no ac- ounting machines and requires no ighly trained clerks. It is claimed o provide a complete, accurate and ast method of handling accounts re- eivable. The method uses Reming- on Rand's Kolect-A-Matic trays, oused in Safe-Ledger equipment for 4-hour protection from fire, and pro- ides an accounts receivable ledger omposed of open, unpaid items only, monthly statement for each cus- omer, and a history of each account. ecure literature on this method by hecking No. 5309 on the coupon and ailing it.

No. 6322—Nozzles

A line of nozzles for injecting nitro- en solutions, anhydrous ammonia nd acids separately or in combina- ions has been developed by hackston-Davis Supply Co. The in- ection nozzles are refinements of a asic single-manifold design developed y H. B. Davis, Spencer Chemical ompany's South Carolina sales rep- esentative. By injecting ammoniat- ng solutions approximately 1 in. from he mixer flights they provide better mmoniation than can be obtained rom conventional spray pipes. By eflection and diffusion, solutions are rought into intimate contact with he superphosphate and potash. From our to eight nozzles are used, de- ending on the size of the mixer. Marketed as "DID" (diffusion, injection and deflection) nozzles, the line includes single-manifold nozzles for use of solutions; dual-manifold nozzles, for use of solutions and anhydrous ammonia; and triple-manifold nozzles, including one for utilizing from one to three materials. To secure more complete details check No. 6322 on the coupon and drop it in the mail.

No. 6318—Earth Borer

A new vibratory earth borer that makes a fertilizing hole without removing any soil is now available. Manufactured by the Mall Tool Co., the unit prepares soil for a more effective and economical method of fertilizing trees and shrubs. The self-contained unit consists of the 5½ h.p. model 2MG gasoline engine and a 7-ft. flexible shaft which drives a vibrating head. When the operator presses the throttle, the rotary motion transmitted through the flexible shaft into the vibrating head becomes a powerful throbbing action which bores roughly a 2-in. diameter hole 2-3 ft. deep in less than a minute. Holes can even be bored the entire length of the shaft. Fertilizer is then poured into the hole. To secure more complete details check No. 6318 on the coupon and mail it.

No. 6327—Spray Catalog

Catalog No. 30 has just been published by Spraying Systems Co. It covers spray nozzles and accessories for all types of farm, ranch, orchard and garden spraying. The 20-page catalog includes illustrations, description and spraying data on all types of nozzles for boom spraying, broadcast spraying, hand spraying and airplane spraying. Information on accessory equipment is also included, such as adjustable valves, strainers and spray guns. Included in the catalog are tables for calculating field coverage of chemicals in terms of gallons pe racre and gallons per minute. Secure the catalog by checking No. 6327 on the coupon and mailing it.

No. 6326—Ammonia Converter

The J. C. Carlile Corp. has available detailed information concerning its new portable ammonia converter. The firm develops and produces a line of portable ammonia converters for the production of aqueous ammonia wherever desired. Company spokesmen say efficiency approaches 100%. Check No. 6326 on the coupon, clip and mail it to secure more complete information.

No. 6321—Portable Sprayer

A portable sprayer for such solutions as insecticides, fumigants, emulsions, deodorizing liquids, oils, polishes, floor dressings, moth proofers, and glass cleaners is now available from Spraying Systems Co. This new sprayer was designed for use in commercial plants. The No. 6000 sprayer, as it is called, weighs 1¾ lb. and can be held and operated with one hand. It's supplied complete with unbreakable plastic jar that is easily refilled by unscrewing from the cap. A companion unit, the No. 5870 chlorine sprayer, is identical to No. 6000, except that all metal parts that come in contact with chlorine solutions are made of stainless steel. To secure more complete details check No. 6321 on the coupon and mail it.

LAND VALUE DOWN

Maine farm land value, in dollars, declined 3% from March, 1954, to March, 1955, according to the U.S. Department of Agriculture.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

M. P. Etheredge, State College, Miss., was named president of the Association of American Control Officials at the group's annual convention in Washington. . . . Clyde A. Bower, Oklahoma City, was elected president of the Association of American Pesticide Control Officials. . . . Curtis A. Cox, Virginia-Carolina Chemical Corp., is new general chairman of the Fertilizer Section of the National Safety Council. . . . The National Nitrogen Solutions Assn. renamed Wayne Johnson, Shenandoah, Iowa, as president.

Davison Chemical Co. Division of W. R. Grace & Co. will build a liquid fertilizer plant at Wakarusa, Ind. . . . U.S. exports of pesticides in the first half of 1955 increased 18% over those during the first half of 1954.

Umbaugh Agricultural Chemical Co., Memphis, announced plans to erect three fertilizer plants, to cost $10 million, at Walsenburg, Colo. The plants will produce anhydrous ammonia, phosphoric acid and ammonium sulfate phosphate.

Raising corn by modern methods more than doubled yields and nearly tripled returns over methods used 30 years ago in a demonstration conducted on a Red Wing, Minn., farm. The "corn today" yielded 123 bu. an acre and returned $90 an acre, compared with a 59 bu. yield and $35 return for the "corn yesterday."

In its annual fertilizer situation report the U.S. Department of Agriculture estimated that supplies of the three principal plant nutrients in 1955-56 would exceed the 1954-55 supply by 2.5%. USDA made these estimates: 2.35 million tons of nitrogen, 4.4% more than the 2.25 million tons in 1954-55; 2.3 million tons of available phosphoric acid, little change; 1.94 million tons K_2O, an increase of 4.3% over the 1.86 million tons a year ago.

Lamar Ratliff, 16-year-old Mississippi 4-H clubber, raised an official yield of 304 bu. an acre on his corn plot.

Traffic experts in the fertilizer field said that the new rates announced by Interstate Commerce Commission on trainloads of commodities from one shipper to a single consignee, will not likely apply to fertilizer. However, it was regarded as a "foot in the door" which might lead to better rates in the future.

Food and Drug Administration used its five-man advisory board to establish a tolerance of one part per million on U.S. Rubber's Naugatuck Division pesticide, Aramite. This was the first time the committee had been called into play. . . . The American Potash Institute, Washington, D.C., observed its 20th anniversary. It was launched in 1935.

Agricultural losses suffered during the August floods in Connecticut, Pennsylvania and New Jersey totalled $5 million, it was announced. Crop damage was the largest single item, being figured at $2.8 million.

New appointees to industry positions included John E. Fletcher and L. Ralph Boynton who were promoted to new sales posts by U.S. Potash Co.; Robert J. Engelhardt, who was named vice president for J. C. Carlile Corp.; John W. Crowther, promoted by Frontier Chemical Co.; and Laurance S. Rockefeller was named to the board of Olin Mathieson Chemical Corp.

The Federal Food and Drug Administration increased fees for the setting of tolerances for pesticidal chemicals, stating that the former charges did not pay their way. In some categories, the fees were doubled. . . . Stauffer Chemical Co. announced plans to merge with Consolidated Chemical Industries, Inc.

An Indian fertilizer firm, Fertilizers & Chemicals, Ltd., Travancore, India, called for tenders for the supply of manufacturing equipment. Cost of the proposed new plant is $6 million. . . . California Spray Chemical Corp., Richmond, Cal., announced that it will build a $1.5 million captan plant in France. Production is scheduled for the fall of 1956.

The Corn Belt Agricultural Ammonia Conference, held at Urbana, Ill., was told that full fertilization could add a billion bushels to midwest corn production. Some 700 persons registered for the meeting.

The Interstate Commerce Commission, in granting train load rates for bulk commodities when shipped by a single shipper to a single consignee, raised speculation in the fertilizer trade as to whether this principle might be applied to the plant food shipments.

Dr. G. L. Bridger, formerly of Iowa State College, has joined the Davison Chemical Division of W. R. Grace & Co. as director of agricultural research. . . . Kenneth A. Keith was named to a new position by Spencer Chemical Co. Formerly connected with the sales department and a market analyst, Mr. Keith was made manager of agricultural chemicals market research.

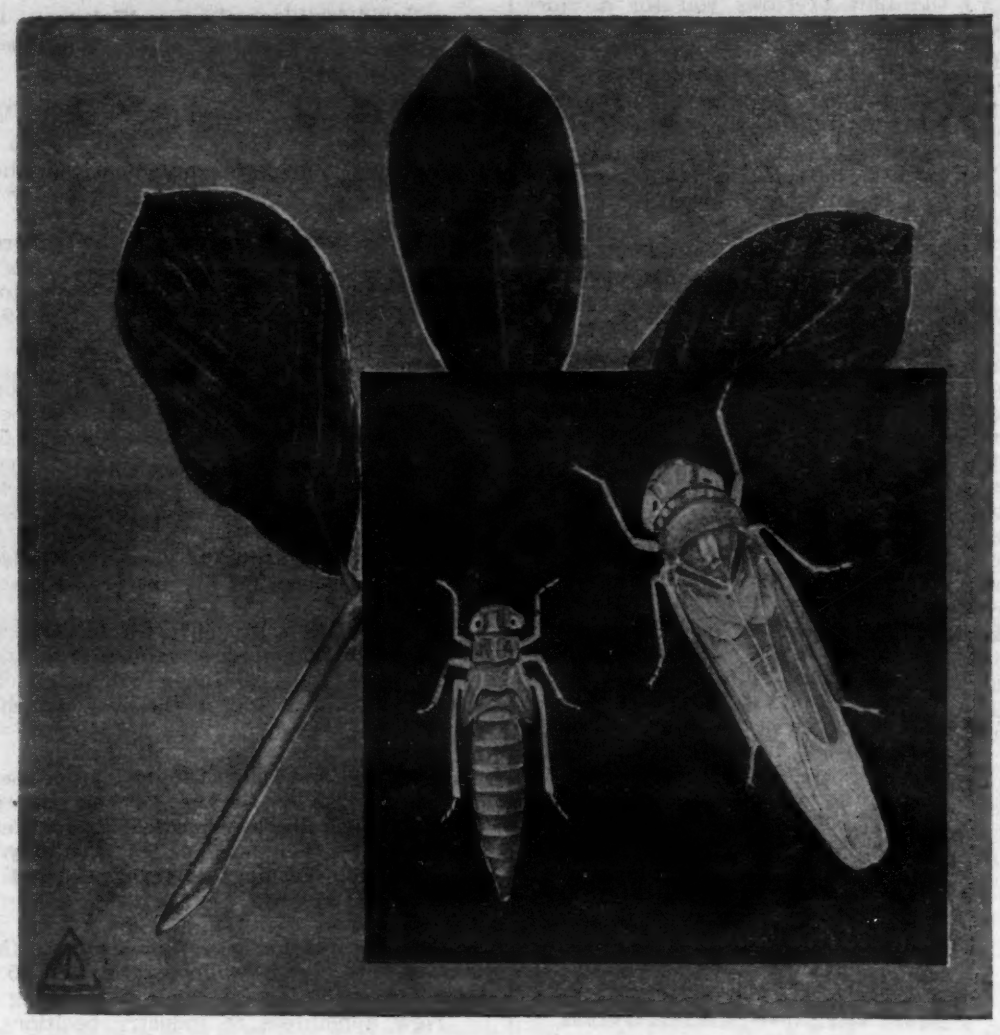
Western States Chemical Corp. will begin manufacture of complete pelleted fertilizers in a new plant now under construction at Nichols, Cal. The company has been organized as a subsidiary jointly owned by Pacific Guano Co., Berkeley, Cal., Triangle Company of Central California, Salinas, Cal., and Wilbur-Ellis Co., San Francisco.

Monsanto Chemical Co., St. Louis, announced a special sales staff within its Organic Chemicals Division to market farm chemicals which the company will market for the first time under its own label in 15 Midwest states. Charles P. Zorsch, associate manager of the division's Agricultural Chemicals Dept., heads up the new farm chemicals section within his department.

BUG OF THE WEEK

Mr. Dealer--Cut out this page for your bulletin board

Potato Leafhopper



How to Identify

This leafhopper is a tiny, pale-greenish insect, usually found on the undersides of leaves. The adults fly when disturbed, but the tiny nymphs scamper for cover traveling sidewise.

Damage by Leafhopper

Young and adult forms of this insect feed on the undersurface of leaves by sucking the plant juices. The leafhopper transmits to the plant a substance that causes a disease condition called "hopperburn," the first symptom of which is a triangular brown spot at the tips of the leaflets. Later, the entire margins of the leaf may curl upward and turn brown as though they had been scorched. Badly affected plants die early, thus reducing the yield of potatoes. The insect, in all stages, sucks the juices from alfalfa plants, stunting them and reducing yields of hay.

Habits of Leafhopper

The pest is found throughout the year in Florida and other Gulf States, but appears in the north usually in April or May. Since they have never been found in colder climates in the winter, it is thought that the pest migrates from the south. Early in June, they move in large numbers to potato fields and deposit eggs in the tissues of the plants. In about a week, the eggs hatch into wingless nymphs. These nymphs pass through five stages and become winged adults in from 10 to 14 days. The period from egg to adult requires about 21 days, and there may be as many as six generations in a single season.

Control of Leafhopper

Either spraying or dusting of a number of modern insecticides has proved to be effective in control of leafhopper. Materials used for this purpose include toxaphene, chlordane and DDT. Growers are advised to begin control operations when the insects first appear and repeat the treatment as often as necessary. Recommendations for the use of various materials vary considerably from state to state. For specific information about the time, rate and methods of application best suited to a given locality, growers are urged to consult local agricultural authorities.

Potato Leafhopper drawing furnished Croplife through courtesy of Hercules Powder Co.

OVER THE COUNTER

(Continued from page 9)

e able to help you now—it's a bad me of the year," or some other nbusiness-like statement.

As stated above, the control func- n of an operating budget has a de, perhaps essential part to play any successful dealer's business. ntrols in a business enable the aler to know how he is doing as mpared to plans.

ontrols Beneficial to Dealer

Controls prevent the dealer from ing surprised, enable him to check s progress from time to time and so doing to predict the outcome th a fair degree of accuracy. The aler can also determine if changes adjustments need to be made if erations are not going according to ans.

Seldom will a dealer discard an perating budget once he has es- blished one. No major business without a carefully defined, well etailed operating budget. If they're ecessary for the large business, hy should they not be useful for he average farm chemicals re- ailer?

The dealer who plans controls for ances, including such phases as e accounts receivable policy, month- aging of all accounts, wage scale, argins, variable operating expenses, les volume per employee and in- ntory level, knows where he is ing. It's like the motorist who llows his road map and plans his ip so that he can make 500 miles travel per day according to sched- e. If he made only 400 miles he ll check back and find out why he ll shy of his goal.

Likewise the dealer who is falling ort of his goal as outlined in the erating budget, can check back to the possible causes and then do mething about it. Probably he will termine that some extra sales ef- rt, an extra promotion, or a change policy will enable him to get back line with the operating budget.

ound Advice

Dealers attending the recent an- al convention of the Pennsylvania illers & Feed Dealers Assn. heard me sound advice on business prac- es.

In a thought-provoking address en- led "Financial Yardsticks for the tail Dealer," Dr. C. A. Becker, pro- sor of agricultural business mar- ting, advised the dealers that "ac- unting should be a tool for im- ovement of business." He explained w the proper analysis of business tements can be useful in solving rrent problems and planning for e future, and pointed to the need departmentalizing profit and loss tements to know "where the ney to work with actually comes m."

To illustrate his points, Dr. Becker ed an average operating statement mpiled from figures received from selected dealers for the years 52-53. He said that the figures uld not be technically representa- e because of the small number rveyed, but considered them most eful for over-all analysis. The net erating profit of the 10 averaged 7%.

In a series of charts analyzing the erage statements it was indicated at the gross margin of profit varied m 7.1 to 16% with a median of 8%, net operating profit from 4% minus 1.1% with an average of %, the ratio between current as- s and debts ranged from 15 to 2% with a median of 10.9% and the net worth ratio averaged 72%.

Under operating efficiency factors the charts showed that sales per man averaged from a low of $30,000 to a high of $84,000 with a median of $47,700. Inventory turnover was listed at 30.3 to 9% with an average of 11.6%. current assets turnover ranged from 11.3 to 3.7% with a median of 5.1%, salary and wages per $100 of sales represented a range of 3.19 to 9.08% with an average of 6.71%, and truck and delivery per $100 sales varied from 57 to 2.1% with the median point at 8.1%.

In regard to credit factors, the survey showed that the per cent of credit assets in accounts receivable varied from 80.1 to 39.7 with a median of 62.6%; sales in receivables ranged from 6.9 to 17.8% with the average at 13.1%; per cent of assets in receivables ran a range from 17.1% to 61% with an average of 36.6%. The number of days in receivables varied from 21 to 54 with an average of 39.

Following the analysis, Dr. Becker counselled the dealers to periodically study the accounts receivable on the basis of number of days overdue and put up the action flag when they reach 90 days or over. He further advised them to have a clearly defined credit policy in writing and definitely investigate all risks. "You could find you are financing the farmer's new car," he cautioned.

He told the dealers to explain and make certain that the customer knows of and understands the credit policy, and "don't try to go into the banking business."

Sound advice on "Getting the Most Out of Your Advertising Dollar" was offered by Dr. F. A. Babione, associate professor of marketing. He said that the over-all approach should be emphasis on product quality, good public relations and dealer satisfaction.

He called for "self examination" to make certain that dealer signs are kept in good repair and clean and readable. Dr. Babione further stressed that advertising should "sell" as well as identify the product, and suggested that before preparing copy the question should be asked "does anybody want to do business with me and how is my business different from that of my competitor?"

In conclusion he said that "to appreciate how modest advertising costs really are, compare the expense of personal calls on customers per week against a one good advertisement approach."

New Jersey Soils School Scheduled Nov. 9 at Rutgers

NEW BRUNSWICK—Rutgers University will hold its one-day soils school for fertilizer and lime dealers, agents and salesmen Nov. 9, from 9:30 a.m. to 4 p.m. in Lipman Hall.

Emphasis will be on organic matter in the soil with three members of the Agricultural Experiment Station staff as speakers, according to Wallace A. Mitcheltree, extension specialist in soils, who is making arrangements. There will also be a review of fertilizer changes and new recommendations by Dr. E. R. Purvis, Rutgers soil specialist.

In a notice of the meeting Mr. Mitcheltree is suggesting the possibility of forming an organization to foster a general educational program. Time will be allowed at the morning session to discuss this.

FARM SERVICE DATA

Extension Station Reports

Spores of the fungus that causes tomato anthracnose or ripe fruit rot in the field, the major disease of tomatoes in New York State, may be harbored by the leaves, according to findings by Cornell plant disease specialists.

Anthracnose infections have been attributed in the past chiefly to spores carried over winter in soil debris. That spores of these highly infectious fungi can be carried on the leaves without visible injury to them has now been demonstrated in greenhouse and field experiments at the station.

"Our results indicate that anthracnose fungi developing on tomato leaves may be just as important a source of fruit infection as inoculum from over-wintered soil debris," says Dr. W. T. Schroeder in commenting on the investigations.

The station scientist and his associates used a "marker" strain of the anthracnose organism in greenhouse and field tests which enabled them to prove conclusively that inoculum from the leaves can produce rotting by infecting uninjured tomatoes on the vine. It was also found that the anthracnose organism can gain entrance into leaves injured by flea beetle feeding or early blight infections.

It is believed that these findings may account for many severe outbreaks of anthracnose in tomato fields where the usual source of inoculum is not prevalent. "This may be especially true in outbreaks of the disease in early and determinate varieties and those subject to early defoliation," continues Dr. Schroeder. "Foliage inoculum could also explain severe outbreaks during periods of heavy and prolonged dews in the absence of rainfall."

★

"A Guide to Killing Woody Plants in West Virginia," West Virginia University Agricultural Experiment Station Circular 98, is ready for distribution, Dr. H. R. Varney, director of the station, has announced.

The publication, written by Kenneth Carvell, assistant silviculturist, and Phil Berthy, extension forester, gives both cutting and chemical methods of killing undesirable vegetation. The authors recommend chemical methods because they are superior in that they do a more rapid and more complete job of killing.

Specific instructions for killing brush, saplings, trees, grapevines, and poison ivy or honeysuckle are given. Equipment required, safety precautions necessary, best time of application and mixing instructions make the circular a complete guide to successful killing of undesirable plants.

★

Preliminary tests by Cornell scientists at the New York Agricultural Experiment Station at Geneva indicate that an off-flavor which develops in stored carrots may be due to a deficiency of some minor element.

When specific lots of carrots were divided and stored in common and refrigerated storages, it was noted that the ones held in cold storage turned extremely bitter. The ones held in common storage, on the other hand, remained practically free from bitterness and kept a higher degree of the orange pigment than carrots held in cold storage.

★

Rundown permanent pastures can be renovated and fertilized this fall to produce higher yields of legumes and grasses at a lower cost per acre next year.

These rebuilt pastures can often carry twice as many livestock per acre as formerly, according to college agronomists. This means more meat and milk and higher return for livestock and dairy farmers.

Three steps in renovating rundown pastures are: (1) kill out the old sod; (2) lime the soil where needed and build up its fertility by adding fertilizer carrying nitrogen, phosphate and potash; (3) reseed the pasture with high yielding, well adapted strains of legumes and grasses.

In Northern areas, farmers can kill out the old sod this fall, leave the field rough over winter and then work it down and seed it next spring.

★

Because ground moles are attracted to lawns and turf in which grubs abound, control of the grubs cuts down the food supply and may well induce the moles to leave for grubbier lawns. John C. Schread, entomologist at The Connecticut Agricultural Experiment Station, says that either chlordane or DDT may be used to control grubs.

Chlordane may be applied to grub-infested turf as a 5% dust at the rate of 200 lb. to the acre, 5 lb. to 1,000 sq. ft. It may also be used as a 50% wettable powder at the rate of 20 lb. in 1,000 gallons of water to the acre, ½ lb. in 25 gallons of water to 1,000 sq. ft. In the 48% emulsion form, the equivalent acre application in the 1,000 gallons of water is 2½ gallons. For 1,000 sq. ft., use ½ pint of emulsion in 25 gallons.

A 10% DDT dust used at the rate of 250 lb. to the acre, 6 lb. to 1,000 sq. ft., of infested lawn will control grubs. A 50% wettable powder may also be used at the rate of 50 lb. in 1,000 gallons of water to the acre, 1⅛ lb. in 25 gallons of water to 1,000 sq. ft.

Granular formulations of the insecticides may be substituted for the dusts if preferred.

★

Stemmy, disease-prone, early-maturing orchardgrass is being remade by U.S. Department of Agriculture researchers into a better forage partner for the East.

H. L. Carnahan, plant breeder, and J. H. Graham, pathologist, have several promising strains of orchardgrass of widely varying characteristics growing in test plots at the U.S. Regional Pasture Research Laboratory, State College, Pa. They were selected from orchardgrasses growing there—some of local origin, some collected by other scientists, and some introduced from abroad.

A forage-crops joint committee of northeastern experiment stations and the Pasture Laboratory is evaluating the performance of these strains and soon will decide whether any have enough all-round superiority. If so, they will be increased either by seed or vegetatively by tiller division to supply all 12 northeastern experiment stations for testing.

PENNSYLVANIA DEALER

(Continued from page 9)

the prospect is really interested and waiting for the dealer.

"Credit is a very important situation in selling farmers at this time," says Mr. Wenger, "because many of them are getting hard hit economically. Nevertheless, this doesn't mean that their credit is bad. It's just that they are going to be slow pay and we have to side-step this situation as much as possible. So when a farmer asks us to extend him credit, we have to see him personally and discuss the situation on its own merits."

Farmers raising cash crops, such as tobacco, tomatoes and beans are considered excellent risks. There is a constant demand for these crops and many farmers are contracted in advance by packers. As such, Mr. Wenger feels justified in extending them greater credit balances.

Mr. Wenger points out that "we have to pay our bills and if we ruin our credit, we're really in bad shape. Some farmers play one fertilizer dealer against the next and still get what they want. We can't do that."

He also points out, that even if a farmer quits a dealer from whom he can't get extended credit, it's just a matter of time before he comes back again. A farmer can only do business with a specific number of dealers in an area before it catches up with him and this makes a cycle. But when the farmer returns to a dealer that he formerly dropped, he's more conscientious about his obligations and is a better credit risk from that time on.

"We would rather have a dozen small users than two large ones, even though we have to go to more expense to make up small orders and deliver them," says Mr. Wenger. "A short time ago we had a bad experience when a few large users started to dictate their terms and prices to us and almost put us out of business. Since then, the small users have become just as important to us as the large. Don't put all your eggs in one basket is a good slogan to observe if you intend to stay in business."

Through telephone conversations, Mr. Wenger determines the type of crops that farmers are raising and classifies them. Then literature is mailed out regularly that features a fertilizer for the specific crop. By pin-pointing his mailings, he has been getting greater response from his customers.

While institutional pieces are good, Mr. Wenger feels, these should be sent out only when no other more specific material is available. Farmers that have two or more crops, get that many more pieces of material in their mail box—and because each is slanted towards a certain crop, they read them all.

"We have broken into many large farm accounts by selling through the housekeepers," says Mr. Wenger. "We show them how to use our fertilizer on their lawns or gardens making sure that an ample supply is left behind. We tell the housekeeper to ask her husband to use the left-over quantity on his crops. This gives us an opportunity to return at a later date and ask the farmer if he used our fertilizer and how he liked it."

Dry fertilizer is the only type handled by Mr. Wenger because liquid fertilizers just haven't "caught on" in the territory.

"We are located in the heart of the Mennonite and Amish people known as the plain folks of Pennsylvania," explains Mr. Wenger, "and its the most difficult thing in the world to try and change their warp. Nevertheless, they are cognizant of existing products and only when they have made up their own minds that it is best for them will they make a change. So we don't argue the point, we just sell them what they want."

Horst's Mill only handles one line of fertilizer because the owner feels that more than one line handled by one dealer creates confusion in the customer's mind. If a dealer is sold on one line, both from a cost and productivity angle, why reasons the customer, should he have two brands.

"Stick to one brand and merchandise it aggressively," Mr. Wenger says. "The manufacturer will give you his complete cooperation, accord you sole distribution in a given territory and work with you because he knows that you're concentrating on his line. We have found them to be more than willing to supply us with promotional material, field service representatives, contribute towards our advertising and otherwise help us to move their product to the consumer through us."

Mr. Wenger is assisted in his business by his sons Henry H. and Amos H. Wenger. His wife handles the clerical duties and this family operation has grown so that it takes two extra employees and three trucks to handle its over-all operations.

Fertilizer Conference Scheduled for Nov. 9 at University of Maryland

COLLEGE PARK, MD.—A conference for fertilizer manufacturers, dealers and salesmen will be held here Nov. 9 at the University of Maryland Campus, it was announced by Frank L. Bentz, Jr., extension soil specialist.

Sessions will take place in the University's Student Union Auditorium. Registration is at 9:30 a.m., with a coffee hour scheduled for 9:30 to 10 a.m.

Subjects and speakers during the morning session are as follows: "Minor Elements in Maryland Soils," Dr. J. H. Axley, soils department; "How Plants Absorb Nutrient Elements," Dr. R. W. Krauss, botany department; "Effect of Cover Crop on Yield and Quality of Tobacco," G. L. Steffins, agronomy department; "Irrigation and Fertilization Studies with Snap Beans and Cucumbers," Dr. C. W. Reynolds, horticulture department; and "Nutrient Uptake of Rye Cover Crop and Its Effect on Subsequent Vegetable Crops," Dr. F. C. Stark, horticulture department.

The afternoon program will be opened by the University's new director of extension, Dr. P. E. Nystrom. Subjects and speakers to follow will be: "Liquid Fertilizers," Dr. K. G. Clark, division of fertilizers and lime, U.S. Department of Agriculture, Agriculture Research Service, Beltsville, Md.; "Mulching and Fertilization of Fruit Trees," Dr. L. E. Scott, horticulture department; and "Nitrogen Versus Legumes," Dr. A. M. Decker, agronomy department.

PESTICIDE CONFERENCE

The New Jersey station's annual pesticide conference is scheduled for Nov. 16 at 9:45 in the University Commons, with a scheduled review of research in weeds, diseases and insects.

RINGING THE cash register

Merchandising Hints for The Retailer

Why Do They Quit?

Marquette University, reporting on a survey to determi why customers stopped buying at a certain store, ga the following reasons and percentages in order of impo tance: (1) Bad manners—45%; (2) bad housekeeping- 31%; (3) prices too high—27%; (4) limited choice—17 and (5) other reasons—8%. The majority of the reaso it may be noticed, are concerned with faults that c easily and readily be corrected in any type of retail oper tion. The total percentages are over 100% because so customers gave more than one reason.

Keep Up Records

Your own business records are even more important th records of customers' purchases. If your business reco are not departmentalized enough they cannot be analyz properly. All too frequently miscellaneous is the on classification used for expenses. A survey taken in 19 of a number of hatcheries showed that 54% of the fir showed an increase in business. Of these, 38% show less earnings. In other words, their expenses increas out of proportion to the increase in volume of busine Such a trend, if continued, would ruin any business. T "more business—less profit" trend can be licked by a co stant review of, and close attention to labor and oth costs.

Provide A Phone

An effective good will builder is making a telephone ava able to the customer. A small sign near the telepho might read: "Courtesy Phone for Customers." One merchant who has this service has added a few more words to his sign, which reads that customers are welcome to make local calls at the store's expense. The merchant says the cost amounts to but a few cents a day, yet is one of the best ways he has found to gi customers distinctive service. His competition provid only pay telephones, he states.

Profitable Sideline

Homer Everly, owner and operator of the Everly Gra Co., Eskridge, Kansas, has developed a profitable sideli to his feed, grain and fertilizer business. He has gone in the hay delivering business. During the past year M Everly marketed 1,200 tons of Wabaunsee County prair and alfalfa hay in southwest Kansas and he did it himse He made 200 trips to points beyond Hutchinson to deliv 40,000 bales of hay, driving around 70,000 miles. He ma a trip at least every other day. Good quality prairie h is much in demand, Mr. Everly found, and has a stea year around market. Just recently he delivered this ty of hay to the fair grounds at Hutchinson, Kansas. In ord to attract attention to his hay business, Mr. Everly h painted his truck, identifying himself as "the hay man He often finds orders for hay in his cab as he leaves t truck parked on the street of towns in the area he serve

Banker Friend

A dealer who has established a good credit rating at t local bank will have no trouble in arranging a loan five minutes if he should desire one. There are six rul which a dealer should observe if he is to have excelle credit rating at his bank. (1) Visit the bank frequent and tell them of any new developments in his busine (2) Develop a good checking account and make sure it always in good order. (3) Give the loan officer a quarter statement of all balance sheet items. (4) Ask the ba officer's advice on business operating principles and ta that advice as often as possible. (5) Ask the loan officer opinion of the credit rating of new charge customers. (Borrow money from the bank as often as it can be us to good advantage.

90% Will Understand

If you have ever had to wait and wait at a store witho being served you know how exasperating it is for t customer. You vow you'll never step inside that sto again. Your customer becomes just as exasperated wh he orders a delivery at a certain time and doesn't get without an explanation. Explanation of delayed servi will satisfy 90% or more of your customers. But a la delivery without an explanation means you have lost t customer's confidence and most likely his future patro age. A prompt and courteous dealer can be sure of happy buyer.

if your product is marketed through distributors and dealers . . .

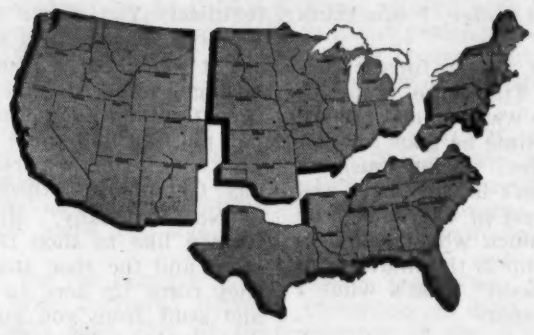
Croplife is for YOU!

AN IMPORTANT EXCLUSIVE is available to advertisers whose agricultural chemical products are marketed through distributors and dealers. It is Croplife's unique *regional crop-area circulation plan*, carefully developed to fill an urgent need in the industry's marketing and advertising facilities—the need of advertisers to reach the dealers and distributors and farm advisers with an up-to-date story of their products and their consumer promotion plans.

THIS IS THE PLAN: In addition to the weekly circulation to manufacturers and formulators, Croplife is distributed on a regional crop-area basis to the dealer-distributor-farm adviser segment of the industry. The merchandising section in each issue of Croplife is specifically edited for dealers in one specific region. This carefully planned editorial formula insures intense reader interest.

More than 11,000 DEALERS, 1,700 custom operators and 1,000 farm advisers receive the issue of Croplife specifically edited for their regional crop-area once each four weeks. The mailing schedule for this group covers consecutively four geographic regions of the United States (see map) with one of four regional dealer issues: The Northeast Dealer Issue, the South Dealer Issue, the Midwest Dealer Issue or the West Dealer Issue. Each week Croplife goes to more than 3,500 dealers, distributors and farm advisers in one of these four regional crop-areas.

THIS CIRCULATION EXCLUSIVE is available only through Croplife. The regional crop-area circulation to dealers has been carefully developed to fit the particular needs of the agricultural chemical industry. Many individual products have been developed and approved and are being sold for use on a specific crop; therefore, marketing and promotion plans must be directed specifically to the appropriate crop-area. Croplife's dealer circulation developed along crop-area lines offers advertisers the *most flexible medium possible*, designed to give "direct-hit" coverage for specific messages without the higher cost of a larger-than-necessary circulation on an inflexible nationwide basis. Advertisers interested in reaching dealers in more than one region can do so easily and economically with a selective advertising schedule.



In addition to its national coverage, Croplife offers a selective regional circulation plan in these crop-areas

HOW TO USE THE PLAN: Select the regional crop-areas—Northeast, South, Midwest or West—in which you need to reach dealers, distributors and farm advisers with the up-to-date story of your products and your consumer promotion plans. Plan your message to inform and to educate this group. Then, select the appropriate issues of Croplife to carry your advertisements. Croplife's printed circulation statement outlines the four regional crop-areas in detail and gives the issue-by-issue mailing schedule. Ask us for a copy.

AND SOON—4000 additional selected dealers will be added!

BEGINNING IN JANUARY this important circulation exclusive becomes even more valuable to advertisers who are reaching dealers through the pages of Croplife. An additional 4,000 selected dealers handling agricultural chemicals will be receiving the issues of Croplife edited specifically for their crop-areas. One thousand dealers in each regional area have been screened and verified and will be added to Croplife's controlled circulation plan, bringing the total number of dealers, distributors and farm advisers receiving Croplife to more than 18,000. Each week Croplife will go to more than 4,500 of these interested readers in one of the four regional crop-areas.

MAKE YOUR PLANS NOW to capitalize on this unique advertising opportunity, exclusively through the pages of Croplife.

WRITE-WIRE-PHONE for the full story of your advertising opportunity in

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. . . for richer fields

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KANSAS CITY
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Victor 1350

MINNEAPOLIS
2501 Wayzata Blvd.
MAin 0575

It was about 10:30 in the morning when Pat McGillicuddy got up from his desk and said, "I feel the need for a cup of coffee over at Mike's. I'll buy you one, Oscar."

Rotund, meticulous Oscar looked up from his clean, dusted desk. "No thanks," he said coldly. "I'm busy."

"Well, I am, too," Pat said easily, "but I still want coffee. I can think while I drink it."

After Pat left, Oscar turned contemptuously to Tillie, the plumpish bookkeeper, who was inclined toward ulcers. "All the time he goes for coffee, coffee, coffee, during business hours. Why doesn't he stay here and work, like the rest of us? And if he likes coffee so much why doesn't he drink an extra cup in the morning to last him until noon? That's what I do—and it's cheaper."

Tillie wisely said nothing. She had long ago learned that Oscar wanted no replies to his outbursts. He wanted only to have someone hear him, that was all.

Over at Mike's Restaurant, a cheery little place with counter room for 20 patrons and tables for 50 more, Pat sat down and said to grinning, bald headed, roly poly Mike Haines, "One Java."

"Right," said Mike. He brought a cup of black coffee and also a glazed doughnut. He knew from experience what Pat wanted.

"How's business?" Pat asked.

"Good," Mike grinned," but I could use more."

"Who couldn't?"

Pat sipped his coffee. "Mike," he said, "maybe we could cooperate to get more business for both of us."

Mike folded his big, hairy arms across his white jacketed chest. "I sell coffee and doughnuts and you sell fertilizer. You figure we can work together. This I gotta see."

Pat grinned. "Sounds a little strange, Mike, doesn't it? But I've been thinking about that big municipal parking lot three blocks away. Lots of farmers park there every day. Get many of them in here?"

"Not too many," Mike said. "The women like to shop the department store and the shoe stores nearby. If they come up here to buy fertilizer and stuff from you guys then some drop in here for coffee or maybe a full meal. Maybe I should move downtown."

Pat munched on the doughnut. "Mike," he said, "Suppose we would shove a little piece of blue cardboard under the windshield wipers of those cars in the municipal parking lot advertising your business and mine? Maybe we'd get more trade."

Mike considered for a minute. "I don't think so. It's still too far for them to come here special."

Pat went on sipping coffee. Then, "Now if that slip of paper under the windshield, told the farmer that he could get a free cup of coffee and a doughnut by coming here before 11 o'clock, would that help?"

"It would help them, but maybe not me," he grinned. "That would cost dough."

"You gotta spend money to make money, Mike. I'm always telling that to Oscar."

"You ain't havin' much luck with him on it, are you?"

Pat laughed and shook his head. "Now, Mike, if that slip of paper under the car windshield said that you furnished the coffee and Oscar and I furnished the doughnut, and that on that one day we would allow extra discounts to farmers who placed orders for spring delivery fertilizer, would that bring some farmers up here?"

Mike's black eyes began to show interest. "Pat," he said, "now, you are talking. There's not a farmer I know who wouldn't come up here for free coffee and doughnuts, rain or shine. And if you share the cost, that's different. I'll try it."

"I'd want you to hand every farmer getting coffee a little sheet of paper which tells of everything we sell," Pat stated firmly. "That would remind them again, that they'd get a special price on fertilizer by ordering that day."

Mike began to grin. "I guess we could do that, Pat. You're lookin' for extra business and so am I. I hope some of those farmers who come up for coffee and doughnuts are so hungry they'll stay and get a steak, too."

"Well, their wives will come along, and maybe a couple of kids. They'll have to eat, too."

Mike beamed. "Yeah, that's right. Say, maybe I'll come out okay on this deal. Two heads is always better than one, Pat."

"Except when one of them is a woman," Pat laughed. "They cost you money every time—especially when the department store gets in new hats."

Mike roared. "Now you said it, Pat. Wow, the hats my wife has in her closet. And always wants new ones. Gee, she's particular."

"But our wives are why you and I put our heads together to try to work up some extra business, Mike. Isn't that so?"

"Sure, sure," said Mike. "They kinda kick us in the pants and keep us goin'. And—maybe we need a kick in the pants once in a while, eh, Pat?"

"I know it," grinned Pat. "I not only get one from my wife now and then, but I also get plenty from Oscar."

Mike roared again. "Heh, wait a minute. I got something for Oscar."

He poured some hot coffee into a paper container, capped it and handed it to Pat. "Give that to Oscar with my compliments," he said. "I feel good today."

Pat laughed. "I sure will, Mike, but I wish I had some smelling salts. Oscar will faint when I give him this. He just can't picture anyone giving anyone anything — without charging for it."

NEW ENGLAND FLOOD

(Continued from page 9)

prohibited from traveling over storm-weakened bridges on the route. Parkways for passenger cars in both New York and Connecticut were closed, with detoured vehicles clogging over-taxed U.S. 1.

Secondary roads were also reported to be in bad shape. Many smaller towns, which service needs of farmers in rural areas, not only were flooded in the business sections, but also lost most or all their bridges.

Danbury, Conn., had the center of its business section covered with water from the Still River. Despite its status as a manufacturing center and its reputation as the Hat City, the city is an important hub of farmer buying activity for the Western Connecticut and bordering New York region. Dealer stores in many other towns in agricultural districts have experienced losses.

Agricultural damage in New York State is expected to mount to a higher figure than in August. While many of the areas affected two months ago were again hit, additional farming areas felt the impact of the recent cyclonic storm. Many districts with concentration of dairy farms were included.

Damage in Pennsylvania, New Jersey, Rhode Island and to a limited extent in Vermont, Massachusetts and New Hampshire was confined to areas affected in August. About 50% of the repair work since two months ago was reported to have been undone with new damage in scattered locations.

Gross Farm Receipts Down in New England

BURLINGTON, VT. — Cash receipts from marketing Vermont farm products during the six-month period from Jan. 1 through June 1, 1955, averaged 1% below the same level last year, reports Thurston Adams, agricultural economist at the University of Vermont.

Gross farm income in all states except Maine moved downward, but the decline was less than in the country as a whole. Cash receipts of farmers in the New England states during the first six months found Maine up 44% and Vermont and the other states down 1%.

Totals in millions of dollars were: Maine 107, Connecticut 87, Massachusetts 86, Vermont 56, New Hampshire 31 and Rhode Island 12.

Du Pont Adds Two Men To Garden Sales Force

WILMINGTON — Two men have been added to the Du Pont garden chemicals sales force. James E. Sutcliffe, of Norristown, Pa., has been assigned to the Baltimore-Washington area, and George E. Miner, of Lancaster, Ohio, has been assigned to western New York.

Mr. Sutcliffe is a graduate of the National Agricultural College, with a degree in horticulture. Mr. Miner was graduated from Wooster College in Wooster, Ohio.

Mr. Sutcliffe, who joined Du Pont in August, will cover most of Maryland and eastern Virginia, as well as the District of Columbia.

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

It is about time all America take a granary-to-granary inventor of their rich possessions. We li in the North Temperate zone and t U.S. is about the only country any great area capable of increasi its food production beyond the ne of its own people.

In the century between 1850 a 1950 population of the earth mo than doubled and the world ran o of new farm lands. On the avera each human being in the world tod must subsist on 1.8 acres, which not enough. The 3-M diet of me meat and molasses, would be regar ed by a majority of the earth's pop lation as luxury of the highest orde

In normal times at least twenty million people perish each yea from causes directly related t inability to produce enough food It is true, we live in a land o plenty, but during depression year a third of our people were sub sisting on an inadequate diet.

When speaking of food on global basis, grains constitute 82 of the world's diet. Meat accountin for a scant 2.7% . . . milk 3%, a sugar 3.9%.

To furnish the peoples of t world just a fair diet, it would ha to produce 21% more cereals, 12 more sugar, 34% more fruits a vegetables, 46% more meat a 100% more milk.

And to do anything like this, w would need 800% more phosphat and 1,800% more potash to say nothing about many other mem bers of the "plant food" family.

We want to take "time enoug off" to thank the farmers of thes U.S. for taking every advantage applying the needed plant food, the tying down the rolling and ste land with grass roots and sowin more deep rooted legumes.

Only where this has been done ca livestock thrive, and only where goo livestock thrive can people have correct diet.

Proceedings Available

NEW BRUNSWICK, N.J. — Th official printed proceedings of th 42nd annual meeting of the Ne Jersey Mosquito Extermination Ass is off the press, according to D Bailey B. Pepper, executive secr tary. A book of 172 pages, the pr ceedings includes 41 papers by e perts in the field of mosquito contr dealing with topics ranging fro "Public Protection During Foggin Operations," to "Aircraft Sprayin for Mosquito Control." Many ne chemicals used in control operation are discussed. Copies may be obtaine from county mosquito exterminatio commissions in New Jersey or fro the department of entomology, Ru gers University, New Brunswick.

CASH INCOME DOWN

BALTIMORE — Maryland farmer last year reported cash income ma ketings of $248,564,000, compare with $267,805,000 a year earlier.

ood Management ressed at Rutgers rassland Meeting

NEW BRUNSWICK — Stressing importance of good management growing forage plants, Dr. Roy Blaser said "we must get away om the old philosophy that pasture ants are natural and animals graz- them is natural," in remarks at annual Rutgers University Grass- nd Conference Oct. 21.

"These plants are man-made and e've got to know what to do and hy we do it," stated Dr. Blaser, gronomist at Virginia Polytechnic nstitute. "We've got to handle our nimals instead of letting them andle us."

In this connection he referred to tation grazing and described an ex- riment at the Middleburg, Va. Sta- on in which there was an advantage 25% in cow-days for rotation graz- over large open pasture grazing. Dr. Blaser suggested a four-point ogram:

1. Good fertility.
2. Learning to work with mixtures, nsidering the depth to which their ots will grow and drainage capa- ities of the soil.
3. Use the best possible varieties, ch as Atlantic alfalfa.
4. Management and control of ttle.

Only after complete attention has en given to these factors, he said, ould a farmer consider irrigation.

Dr. Robert E. Mather of the Rut- rs dairy department told the con- rence that convenience of applica- on should be a minor point in de- ding which silage preservative to e. Improved quality measured by dor, color and palatability must be easured in terms of worth to the rmer, he said.

Potash has been the most im- portant factor in determining yield and longevity of alfalfa, according to John L. Gerwig, instructor in the farm crops department at Rut- gers, as he reported three years of study of fertilizer ratios on a Nixon loam soil.

"A plant showing severe potassium eficiency symptoms contains ap- roximately 1% potassium, he said. It will not survive hot, dry sum- ers, and is much more subject to eaving during winter."

Wallace A. Mitcheltree, extension oils specialist in New Jersey, dis- ussed handling New Jersey soils for orage crop production. He suggested rying to rearrange field boundaries o that each field contains only one oil type, as a means of more effi- ient management of light and heavy oils.

Robert E. Gardner, associate coun- y agricultural agent in Salem Coun- y (N.J..), described strip grazing nd zero pasture methods he ob- erved on a trip to California. He oncluded that in his opinion these ystems have a lot of merit for the New Jersey farmer.

"They may not be the last word, ut the days of turning stock into 30-acre field day and night con- inuously is over if we intend to meet ompetition."

The conference drew more than 50 to Lipman Hall on the College of Agriculture campus.

Northeast Phytopaths To Meet Nov. 3-4

WEST SPRINGFIELD, MASS — The annual winter meeting of the Northeastern Division, American Phytopathological Society will be held at the Eastern States Farmers Exchange Auditorium here Nov. 3-4 Sessions will be held at 2 p.m. and p.m. Nov. 3 and 9 a.m. Nov. 4. Seventeen papers are scheduled for resentation.

Cotton Picking, Bean Harvest Near End in Mid-South

MEMPHIS — The final windup of cotton picking and bean harvesting held the attention of the Mid-South farmer last week.

Some cotton fields in extreme North Mississippi still remained untouched, however, according to the Mississippi Agricultural Extension Service.

In parts of South Mississippi, cotton picking has been completed. R. M. Waller, extension cotton specialist, reported grades are continuing low. This is partially due to improper harvesting and tramping of trashy, machine-picked cotton into wagons and trailers, he said.

Despite a severe lack of moisture, planting of winter grazing crops is on the upswing, said W. R. Thompson, extension pasture specialist. Mr. Thompson added that corn gathering is making good progress and that much is being sold on local grain markets.

David Young, assistant extension entomologist, advised farmers to continue to watch young oat fields carefully for armyworm damage as this pest is still causing damage in many parts of the state.

In Arkansas, C. A. Vines, associate director of the Agricultural Extension Service, said soybean yields in Arkansas are "turning out better than anticipated."

He said harvesting is coming along fine and that earlier fears that soybean yields would be low were not altogether justified.

He said the recent good weather has given a big boost to cotton picking and that the state was approaching the halfway mark in getting the cotton out of the fields.

Three days of sunshine lifted the cotton farmer's spirits in West Tennessee, where an unusual amount of rainfall has greatly hampered this year's cotton harvest.

H. W. Luck, extension cotton specialist, is urging farmers to use proper cotton handling methods in order to raise lint quality in the late crop.

Continued seeding of cover crops and wheat marked other action on West Tennessee farms. Gathering of soybeans is in progress, Mr. Luck said.

New Fertilizer Plant Operating in Ohio

ST. PARIS, OHIO—A $150,000 fertilizer mixing plant has been put into operation near here by the Green Belt Chemical Co. The plant has a capacity of about 15,000 tons a year and employs some 15 persons.

M. K. Miller, formerly a Tennessee Corporation agronomist, is president of the firm. He is a graduate of the University of Wisconsin and a former member of its research staff. Manager of the plant is Phil Pettett, with 21 years of fertilizer production experience.

Physically, the new mixing plant is 200 ft. long and 100 ft. wide, equipped with overhead conveyor system and a loading dock for bulk fertilizers. Bagged fertilizers will be offered, with both truck and rail service available for distribution. Incoming raw materials arrive by rail and the finished product is shipped out by truck.

New England Fruit Spray Conference Set

STORRS, CONN.—The New York-New England Fruit Spray Conference will be held here Nov. 2-3 at the University of Connecticut.

The conference will adjourn at 11 a.m., Nov. 3, to enable those attending to drive to West Springfield, Mass., for the annual Winter Meeting of the Northeastern Division, American Phytopathological Society, which will begin at 2 p.m.

HOPPER WAR ASKED

CARROLLTON, TEXAS — L. F. Blanton, president of Blanton Grain Co. here, has asked for "a statewide effort to curb grasshopper infestation in Texas." Mr. Blanton, who farms 600 acres near here, said: "We found 50 acres of grain completely consumed by the hoppers. They were so thick that the ground would hold no more of them. The trees were covered too. I've never seen anything like it."

Soil, Water Loans Total $19 Million In First Year

WASHINGTON — During the first full year of the soil and water conservation loan program, the Farmers Home Administration made and insured 3,731 loans for a total of $19,608,000, Ezra Taft Benson, secretary of agriculture, said Oct. 25.

Loans to 3,697 individuals totaled $18,186,000 and 34 groups of farmers borrowed approximately $1,422,000. Private lenders provided approximately $18,000,000 of the funds loaned.

The agency began making soil and water conservation loans about Oct. 1, 1954, following action by Congress which made water facility loans available throughout the United States and authorized loans for soil conservation.

A survey of the use farmers made of the funds they borrowed during fiscal 1955 shows that 79% of the loans to individuals were used for irrigation. The remainder of the funds were used for such soil conservation measures as terracing and pasture improvement, developing water systems for household use and farm livestock, and for drainage. The borrowers planned to improve about 39,000 acres of pasture.

Spencer Names Four Persons to Chemical Research Department

KANSAS CITY—Spencer Chemical Co., Kansas City, announced Oct. 25 the employment of four persons in the chemical research department located at the company's Jayhawk Works in Pittsburg, Kansas.

Paul D. Eddy joins Spencer as a staff assistant specializing in inorganic chemistry. Formerly a resident of Checotah, Oklahoma, he is a graduate of Northeastern State College in Tahlequah, Oklahoma.

Jack D. Taylor is employed as a staff assistant specializing in analytical chemistry. He was graduated from Purdue University in June, 1955, with a bachelor of science degree in chemistry. His former home was Linneus, Miss.

Jean Epperly is employed as a staff assistant specializing in plant pathology. He was graduated from Oklahoma A&M College, Stillwater, Oklahoma, in 1953 with a masters degree in plant pathology. Formerly a resident of Hydro, Okla., Mr. Epperly is a member of the American Pathology Society.

Dr. Robert M. Smith, formerly from Kansas City, is employed as a staff member specializing in physical chemistry. He was graduated from William Jewell College in Liberty, Mo., in 1949 and received his doctorate from Ohio State University, Columbus, in 1955. Dr. Smith is a member of the American Chemical Society and Sigma Xi.

HEADS CROP GROUP

NEW BRUNSWICK, N.J.— George Stevens of Asbury Park is the new president of the New Jersey Field Crop Improvement Assn. He succeeds Lester Jones of Medford.

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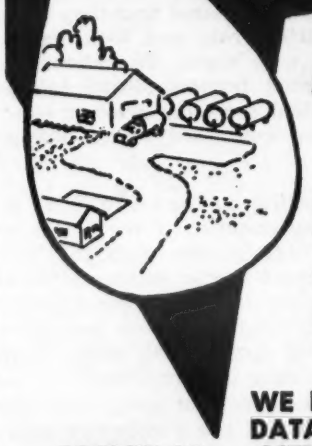

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WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

Considerable progress is reported by British sources in the organization of research for the improvement of the services which the crop spraying industry is able to offer farmers. Research into weed control lagged until 1953 when the National Spraying Committee of the British Agricultural Contractors' Assn. cooperated with the British Insecticide Manufacturers' Assn. to seek government interest.

A progressive Ministry of Agriculture gave ready support and a conference on weed control was held towards the end of 1953. Besides industry representatives, members of the ministry staff, the Agricultural Research Council and the National Agricultural Advisory Service attended. Out of that conference came the formation of the British Weed Control Council, headed by Sir James Scott Watson, a distinguished government official, agricultural writer and scientist. Members include traders, manufacturers, contractors and government officials.

In November, 1954, the first full scale weed control conference was held in Harrogate, Yorkshire, and the three-day program covered every angle of the spraying and herbicide business. Requests for copies of the papers came from all over the world and even Russia asked to be supplied.

Three committees are working actively—the recommendations committee, the research and development committee and a dissemination of information committee—and they report back to the council. It is to this body that the government now turns for consultation and advice.

This year it is felt that insufficient new work has been done to warrant a separate conference so plans have been made to incorporate a number of papers at a conference sponsored by the Society of Chemical Industry at Eastbourne which opens Oct. 31.

One of the tasks which the council has set itself is to consult with U.S. authorities in an effort to settle the nomenclature of herbicides.

U.K. Expert in U.S.

S. P. Stotter, a director of Plant Protection, Ltd., and controller of that company's Fernhurst Research Station, is visiting the U.S. to study techniques of applying insecticides and fungicides to fruit, glasshouse and truck farm establishments. He is interested, too, in the progress made in horticultural education and research.

Mr. Stotter will visit California, Colorado and Washington.

Canadian Sales

The value of pest control product sales in Canada during 1954 has been set at $19,456,601, an increase of 13% over 1953, according to the Dominion Bureau of Statistics.

The increase marks the continuation of a trend apparent since the reports were started in 1947. The largest gain in 1954 was in livestock treatments which showed an increase of 73.9% over the previous year. Sales totaled $2,759,866. Agricultural sprays and dusts, at $7,395,123, represented an increase of 16.9% over 1953, while rodenticides, valued at $346,915, were up 10.4%.

2,4-D and MCP formulations intended for selective weed control in crops advanced nearly 8% in dollar value and nearly 9% in the actual amount used.

New Acid Plant

A new sulfuric acid plant is under construction at Shawinigan Falls, Que., for Shawinigan Chemicals, Ltd. The cost is estimated at $750,000.

The plant will have a capacity of 25,000 tons a year and is expected to start production in the second half of next year. Victor G. Bartram, president of the company, states that while Shawinigan has a use for sulfuric acid, it is expected that excess production will be available for sale.

DDT for Formosa

The Office of Small Business of the International Cooperation Administration, Washington, announces that an ICA-financed award has been made for the supply of DDT spray equipment, valued at $11,895, to Formosa. The contract was awarded to the H. P. Hudson Mfg. Co. of Chicago.

Free Sulfur Imports

The British government announces that effective Jan. 1, 1956, imports of sulfur from any country will be permitted to enter the U.K. under open general license. Individual import licenses, which have been necessary since the trade in sulfur was returned to private hands at the end of 1953, will no longer be required. However, the authorities do not expect that there will be any major increase in the import of sulfur into Britain as a result of the relaxation of control.

Wrong Conclusion?

The danger of jumping to a wrong conclusion and blaming weed sprays for damaged grain has been underlined by a report from the Alberta Wheat Pool, Canadian cooperative grain body.

Officials took heads from a field treated with a heavy concentration of solution and found that they contained little grain and were badly infected with ergot. The chemical was blamed because heads taken from a field receiving a lower concentration contained many plump kernels.

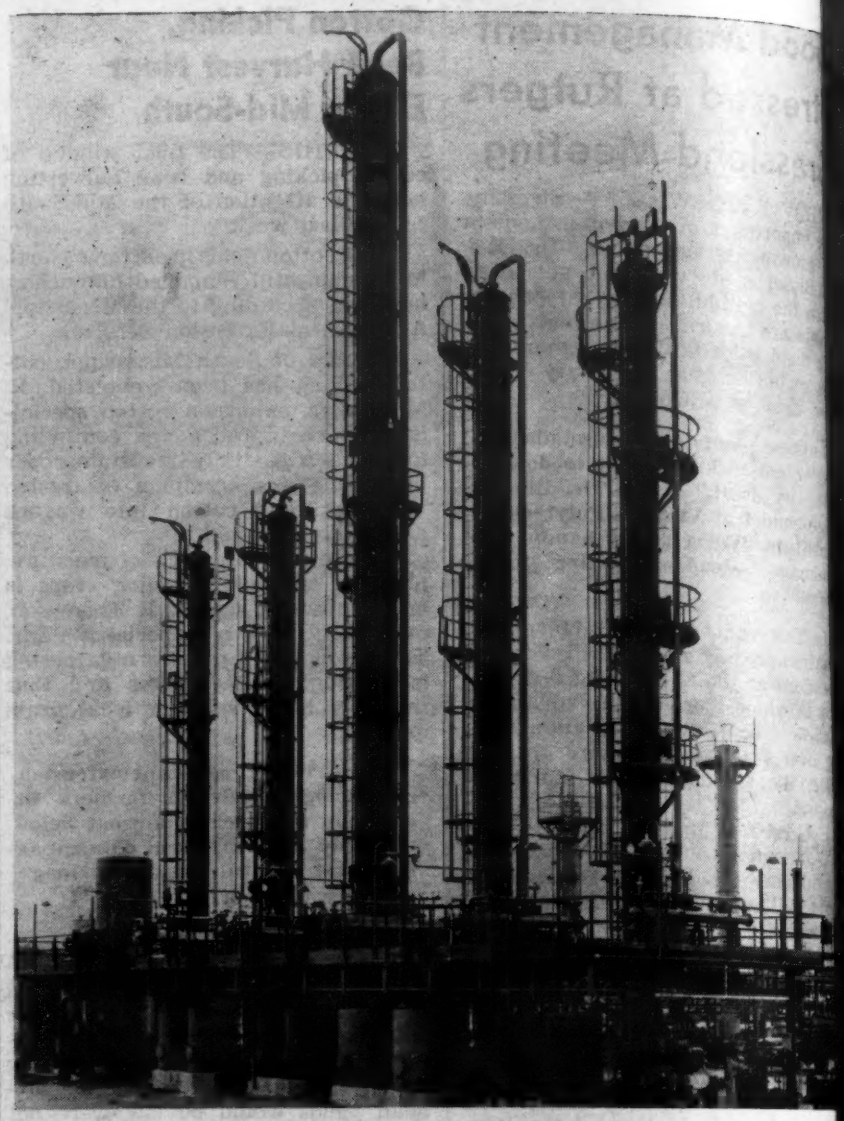
Commenting on the samples, H. A. Freisen, agronomist at the Lacombe Experimental Station, says the high percentage of sterile or empty heads was probably due to the combination of hot dry weather at or just after the time of spraying as much as to the heavy rate of spray used.

The heavier rate of spray may also have weakened the plants and made them more susceptible to ergot infestation although, he pointed out, there have been no reports of this having occurred in Western Canada before. He also suggested that the ergot infested sample may have been taken from the edge of a field adjacent to native grasses which are capable of carrying the ergot infection while the ergot-free sample may have been taken from the center of a field away from the grasses.

Thus, there were several reasons why the fault did not necessarily lie with the chemical or with the rate of spray.

Indian Plans

A report from New Delhi states that the government of India is planning the erection of three fertilizer factories. The total cost will be $112 million. The first will be in the Trombay suburb of Bombay.



CSC NITROPARAFFIN PLANT—Shown above is Commercial Solvent Corp new nitroparaffin plant at Sterlington, La., which went into full producti recently. Output of the plant will be used partially by the agricultural chem cal industry in the production of insecticides. The plant is said to be t world's first full scale nitroparaffin installation. (Previous story in Croplif Sept. 26, page 5.)

215,000 Acres Being Sprayed for Control Of Russian Thistle

SACRAMENTO — The annual spraying of 215,000 acres of Russian thistle growing in open range land between agricultural lands on the west side of the San Joaquin Valley and the Sierra foothills is now under way and is scheduled to be completed by Oct. 25.

This long-term spraying project of the California Department of Agriculture is directed against leafhoppers which return each spring from the Russian thistle to valley crops, carrying destructive curly top virus. The work is carried on under direction of H. M. Armitage, chief, Bureau of Entomology.

Application of spray is made at the rate of one pound of DDT to two gallons of diesel oil per acre. In order to deal a lethal blow to the current generation of leafhoppers, the work has to be carried through to completion in 20 days, necessitating use of airplanes.

The major part of the problem area to be treated lies within Fresno, Kings and Kern counties, with a small segment in San Benito County. County agricultural commissioners cooperate, providing help at flight strips and in the pre-treatment inspections to determine extent of leafhopper infestations.

Prior to the start of the fall campaign, Harold Green, in charge of the field work for Mr. Armitage, made a survey of the area to be treated. Using a helicopter, he surveyed the area in three days.

WILD GARLIC CONTROL

CLEMSON, S.C.—Two applications of 2,4-D per year for two to four years are needed to control wild garlic in permanent pastures, according to E. C. Turner, Clemson extension conservationist.

Gloomicides

The class was discussing the Nor American Indians when the teach asked if anyone could tell what t leaders of the tribes were called.

"Chiefs," said a little girl.

"Correct," said the teacher. "A what were the women called?"

A sharp little lad answer promptly, "Mischiefs."

★

The man of the hour is the o whose wife told him to wait just minute.

★

She said: "This is my first job wi a circus. Will you please tell me wh to do to keep from making mi takes?"

"Yes," said he. "Don't undress front of the bearded lady."

★

It must be wonderful to be you enough to know everything.

★

A near-hit bolt of lightning c create more Christian thinking th many a long-winded sermon.

★

There are many complaints abo the weather, but probably not near so many as there would be if the go ernment regulated it instead of pr dicting it.

★

"Have a good night?" the hoste asked sweetly of the house gue who had slept on a couch.

"Fairly good," he answered sleepil "I got up from time to time an rested."

★

A gunman, it is being told, walke up to a theatre cashier, stuck a g in her face and growled: "The pi ture was horrible—give me ever body's money back."

...all Issued for ...apers for Agronomy ...ection Meeting

ATLANTA—A call has been issued ... papers for the meeting of the ...ronomy Section, Association of ...uthern Agricultural Workers, to be ...ld Feb. 6-8 at the Atlanta Bilt... ...re Hotel here.

Dr. W. E. Colwell, North Carolina ...ricultural Experiment Station, sec... ...tary, reports that the deadline for ...les is Nov. 10 and for abstracts is ...n. 1. One copy of the title should ... sent to Dr. Colwell and one copy ...ould be sent to the appropriate ...airman.

Section officers are Dr. Fred H. ...ll, University of Florida, presi... ...nt; Dr. J. Fielding Reed, American ...tash Institute, Atlanta, vice presi... ...nt and chairman of soils; Dr. John ...ay, Louisiana State University, ...airman of crops, and Dr. Colwell, ...cretary.

Each individual whose paper is ...heduled for presentation is re... ...uested to submit three copies of an ...stract to Dr. Colwell.

...innesota Seed, ...ertilizer Dealer ...eetings Scheduled

ST. PAUL—One-day meetings for ...tail seed and fertilizer dealers have ...en arranged by the University of ...innesota Agricultural Extension ...rvice at eight locations in Minne... ...ta. Each meeting will begin at 9:45 ...m. and end promptly at 3:30.

On the program will be discussions ... soil treatment for highest yields, ... Charles A. Simkins and Harold E. ...nes, extension soils specialists at ...e University; herbicide labels, by ...dwin H. Jensen, extension agron... ...mist; establishing legume seedings, ... Rodney A. Briggs, extension agron... ...mist; insect control, by a University ...tomologist; processing certified ...ed, soil testing, and the 1956 Uni... ...rsity recommended list of farm ...op varieties.

Dates of the meetings are as fol... ...ws: Nov. 1, Tracy Municipal Bldg.; ...ov. 2, West Central School and Ex... ...eriment Station, Morris; Nov. 3, ...orter Hotel, St. Peter; Nov. 4, ...odge Center Theatre; Nov. 7, Green... ...aven Country Club, Anoka; Nov. 8, ...ourthouse, Brainerd; Nov. 9, court... ...ouse, Moorhead, and Nov. 10, court... ...ouse, Thief River Falls.

The meetings are sponsored by the University of Minnesota Agricultural Extension Service, the Minnesota Seed Dealers' Assn., Minnesota Crop Improvement Assn. and Minnesota Department of Agriculture, Dairy and Food.

...ndustry Employment in ...outh Carolina Dips

COLUMBIA, S.C.—September em... ...loyment in the fertilizer industry in ...outh Carolina was slightly below ...he comparable month of 1954, the ...outh Carolina Employment Security ...ommission has reported.

The industry employed 1,271 per... ...ons in September of this year, an ...ncrease of 143 from the August level ...f 1,138, but a decrease of 61 from ...eptember of last year.

Average hourly earnings were up ...o $1.17 compared to $1.15 for Sep... ...ember of last year, but down one ...ent per hour from August. The work ...eek averaged 39.4 hours compared ...o 40.3 for September of last year ...nd 40.6 for August. Weekly earn... ...ngs dipped to $46.10, compared to ...46.34 last September and $47.91 in ...ugust.

TURF RESEARCH NEEDED

MANHATTAN, KANSAS — The ...eed for much more research on ...rasses for lawns, parks, playing ...elds and cemeteries was stressed at ... recent three-day turf conference ...eld at Kansas State College here.

AGRONOMIST HONORED—Dr. Glenn Willard Burton, developer of Coastal Bermuda grass, is shown above receiving an honorary degree of doctor of science from Rutgers University. The occasion was a university convocation celebrating the 75th anniversary of Rutgers' Agricultural Experiment Station, third oldest in the nation. Said Dr. Lewis Webster Jones, president of Rutgers (left): "Agronomist Glenn Willard Burton has been a key figure in the development of grasslands in the Southeast which has opened an active livestock program there . . . distinguished in basic studies of cytogenetics and plant breeding, developing sturdy, disease-resistant, rapid-growing Coastal Bermuda grass; author of many scientific papers; served on numerous committees, American Society of Agronomy, chairman, Georgia Section." Dr. Burton was born May 5, 1910, in Clatonia, Neb. He received bachelor and master of science degrees from Nebraska State University in 1932 and 1933, and then studied under Dr. Howard B. Sprague at Rutgers, receiving a doctor of philosophy degree in 1936.

MORE CARLOADINGS

WASHINGTON—The Car Service Division of the Association of American Railroads has estimated that fourth quarter, 1955 carloadings of fertilizers will total 149,269, a 2.9% increase over 145,051 carloadings in the fourth quarter, 1954. According to the estimate, carloadings will be up in all areas of the U.S.

Stockmen Hear of Mesquite Control

STATE COLLEGE, N.M. — Some 300 stockmen, attending New Mexico A&M College's 15th annual Ranch Day here, were told that agricultural chemicals should be used to control mesquite.

Kenneth Valentine, associate animal husbandman at A&M, summarized the results of a mesquite control experiment on the College ranch and said: "Good grazing management alone is not an adequate control practice. Foliage spraying with 2,4,5-T, if done in time and with proper attention to influencing factors, is the most effective method of controlling this aggressive shrub."

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Vincent Sauchelli

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A symposium — published jointly by the American Society of Agronomy and the National Fertilizer Association.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents, and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color.... $4.50

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Malcolm H. McVickar

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CONSUMPTION OF MIXTURES

(Continued from page 1)

tinued as the region leading in mixture use, and half of the entire country's tonnage was applied there. The most spectacular advance, however, occurred in the West North Central region, where tonnage jumped from 2,000 to 42,600 tons—or more than 2,000%. These two regions together accounted for more than three fourths of the total use and for 87% of the year's increase.

South Carolina—which pioneered in making extensive use of the mixtures—continues to be the leading state in quantities used, and last year applied 30,000 tons.

Although the year's total increase of 62,000 tons represents a 71% advance, fertilizer-pesticide tonnage still represents less than 1% of the mixed fertilizer tonnage used in the United States. (See last column of the table on page 1.) This table is compiled from reports of state and federal agencies and fertilizer manufacturers.

The chief pests that United States farmers sought to control with mixtures in 1953-54 were corn rootworms and wireworms in corn, potatoes, and other crops. Of the 149,100 tons of mixtures used, at least two-thirds served this purpose.

The corn crop received more than half of all the fertilizer-pesticide tonnage used in this country. According to one estimate, Iowa applied mixtures to 362,500 acres of corn; Nebraska to 220,000 acres; Illinois to 12,500 acres. The remainder of the tonnage was applied mostly to potatoes, sugar cane (in Puerto Rico) and vegetables. Figures from Hawaii are not available, but the pineapple growers are known to order some mixtures from Mainland firms and to use locally-prepared mixtures as sprays on foliage.

Varied uses found for the mixtures are illustrated by South Carolina's distribution of 30,000 tons to more than 108,000 acres:

Corn: 100,000 acres to control sand wireworms, corn rootworms, and seed-corn maggots.

Irish potatoes: more than 5,000 acres to control wireworms.

Pastures: 1,200 acres to control white grubs.

Sweet potatoes: 1,000 acres to control wireworms and flea beetles.

Snap beans: 1,000 acres to control seedcorn maggots.

South Carolina farmers applied some mixtures also to cotton to control sand wireworms; to truck crops to control the mole cricket and to lawns to control white grubs. In this area, the per acre rate of application of mixtures is usually much higher than in the midwest.

Fertilizer-pesticide combinations in the U.S. are generally custom-mixed to suit a particular farm situation. Most fertilizer plants do not carry such mixtures in stock.

Fertilizers chosen for use in mixtures usually contain two or more of the primary plant nutrients. There are about 1,700 formulations of mixed fertilizers marketed in this country. Many of these are used with pesticides. Occasionally, a pesticide is added to a single fertilizer material such as ammonium sulfate, superphosphate, potassium sulfate or gypsum.

Pesticides chosen for the mixtures are predominantly (95%) insecticides. The remaining 5% are added to a fertilizer for fungus or weed control. Herbicides in these combinations are used in many areas for lawns and turf, though the total quantity is small.

Aldrin was used in greatest quantity in mixtures last year. Chlordane ranked second and DDT probably third. The principal weed killer used in the mixtures was 2,4-D. Seldom, if ever, is more than one pesticide added to a fertilizer.

How such a mixture will be applied must be known in order to provide a suitable formulation. Since the fertilizer comprises most of the mixture, farmers customarily use their fertilizer application equipment. Their customary fertilizing practices likewise guide them in deciding whether to broadcast or drill and at what time to do the job. If these choices of timing and method would be badly out of line with effective use of the pesticide, then a compromise is a practical solution, provided it would give reasonably good results.

Forms of the mixtures vary, but solids prevail. The preferred form for pesticides has been powder. However, there is a rapid increase in use of granular insecticides with a particle size range of 30 to 60 mesh. The pesticide forms chosen for use in mixtures also include some emulsion concentrates and solutions in low-viscosity solvents. The latter may gain in use because the liquid insecticide can be sprayed conveniently either on powdered or granular fertilizers. Granular fertilizers (like granular insecticides) are expanding in production.

How much pesticide should be mixed with a ton of fertilizer for optimum effectiveness? This is always an important problem. Here is the way proportions are arrived at by taking into account a number of factors, USDA says.

These factors include, first, the rate per acre at which the fertilizer will be applied. The rate depends on how fertile the soil is, how highly concentrated the nutrients are in the fertilizer and how the material will be applied.

Second, when the rate per acre for the bulkier ingredient is decided, the amount of pesticide to add is determined by considering the kind of pest to be controlled and how serious the infestation is likely to be. Also, the kind of crop and soil should be considered.

With these factors taken into account, the quantity of pesticide combined with a ton of fertilizer is reported to range all the way from 1 to 30 lb. aldrin; ¼ to 66 lb. chlordane; and 1½ to 40 lb. DDT.

In some parts of the country, farms are similar enough in soil fertility, the kind and degree of pest infestation and crop and fertilizer practices, for a small number of fertilizer-pesticide formulations to suit many farms. However, it is more usual for conditions to vary so widely, sometimes even within boundaries of an individual farm, that formulations need to be tailored to suit the field and crop.

Mixing is usually done just before the cured fertilizer is bagged or loaded for shipment. The same equipment that served in mixing the fertilizer itself ordinarily can be used (with due regard for removing residues of a pesticide such as 2,4 D). But the mixing time is lengthened several fold to distribute the pesticide uniformly throughout the mass.

Even if mixing is prolonged, it may still be difficult to produce a uniform blend with the usual fertilizer plant equipment, if the pesticide and fertilizer differ very much in particle size and bulk density.

Hazards to crop quality appear no less likely to occur when certain insecticides are applied in fertilizer mixtures than when they are applied to the soil separately. Some pesticides are known to impair flavor of certain food crops when applied to soil in which those crops are to be grown; while other types of insecticides may persist in the soil and accumulate enough to impair growth of highly sensitive crops.

One of the problems faced by the fertilizer industry when it comes to mixing insecticides with their plant food products, is the health hazard introduced with the handling of pesticides. Special precautions must be taken to protect workers from accidental contact with toxicants which may be inhaled, swallowed or absorbed through the skin to cause injury.

As the volume of this business grows, the hazard is likely to increase. The advisable procedure is for a manufacturer to adopt all health precautions prescribed for the handling and processing of the particular pesticide with which he is concerned. Such precautions would include installing somewhat expensive equipment to keep down dust, which is a familiar nuisance in fertilizer plants.

Farmers or other workers who use a fertilizer-pesticide mixture likewise need to be reminded of health precautions that are advised for those handling the particular pesticide in the mixture.

Prices of insecticides when mixed with fertilizers have been compiled from information given by a number of companies last year. Some manufacturers stated that their quoted prices did not fully cover all costs of handling, storing, and mixing the insecticide with the fertilizer. In some instances, there was no charge for mixing. In others, the service charge for mixing ranged from $1 to $10 per ton of mixture. There is a possibility of the service charge rising, if demand leads plants to make extensive alterations and install additional equipment to handle orders.

The price of fertilizer is increased by about $22 to $25 a ton in the South Atlantic area when 8 lb. aldrin are added to control the southern corn rootworm in peanuts. Applying 500 lb. of the fertilizer-pesticide mixture per acre, as recommended, fixes the cost of aldrin in the mixture at $5.50 to $6.25 per acre.

The price of a ton of fertilizer is increased by $20 to $30 (usually $25) in the North Central area when 10 lb. aldrin are added to control the northern corn rootworm. With applications of one-half to one pound aldrin per acre, as generally recommended, the cost of the insecticide is usually no more than $8 per acre.

A mixture costs more than a ton of fertilizer alone—an outlay which may tempt some farmers to reduce the amount of fertilizer they would ordinarily use. Since this can result in a poorer crop, there may be need to remind mixture users of the importance of applying the recommended quantities of both fertilizer and pesticide.

Principal Pesticides Used and Pests Combatted

Regions	Pesticides	Pests
New England (Conn., Maine, Mass., N.H., R.I., Vermont)	Chlordane, DDT, lindane, 2,4-D	Grubs, wireworms, weeds
Middle Atlantic (Del., D.C., Md., N.J., N.Y., Pa., W. Va.)	Chlordane, aldrin, DDT, dieldrin, 2,4-D	Wireworms, grubs, weeds, s corn maggots
South Atlantic (Florida, Georgia, N.C., S.C., Virginia)	Chlordane, aldrin, DDT, dieldrin, heptachlor, toxaphene, 2,4-D	Corn rootworms, wireworms, worms, elongated flea bee grubs, maggots, mole cric sweet potato weevils, we white-fringed beetles
East North Central (Ill., Ind., Mich., Ohio, Wis.)	Aldrin, chlordane, DDT, dieldrin, heptachlor, lindane, 2,4-D	Corn rootworms, wireworms, grubs, onion maggots, s berry root weevils, weeds
West North Central (Iowa, Kansas, Minn., Mo., Neb., N.D., S.D.)	Aldrin, chlordane, dieldrin, heptachlor, 2,4-D	Corn rootworms, wireworms, bage maggots, grubs, onio maggots, weeds
East South Central (Ala., Ky., Miss., Tenn.)	DDT, chlordane, aldrin, heptachlor, 2,4-D	Corn rootworms, wireworms, grubs, weeds, white-fringed beetles
West South Central (Ark., La., Okla., Texas)	Aldrin, dieldrin, lindane, 2,4-D	Grubs, maggots, weeds, wireworms
Mountain (Ariz., Colo., Idaho, Mont., N.M., Nev., Utah, Wyo.)	DDT, aldrin, arsenicals, BHC, chlordane, heptachlor, toxaphene, 2,4-D	Wireworms, cutworms, grubs, maggots, weeds
Pacific (Cal., Oregon, Wash.)	Aldrin, chlordane, DDT, heptachlor, IPC, lindane, 2,4-D	Wireworms, potato flea beet strawberry root weevils, gr spotted cucumber beetles, weeds
Puerto Rico	Aldrin	White grubs

NOTE: The pesticides listed in each regional group should not be interpreted as applied to pests listed for the particular region.

A state's position on the mixtu is determined by one or more ag cies in the state, such as the ag cultural experiment station, the tension service, or the state depa ment of agriculture. Sanction of m tures has generally been accompan by many reservations on the part the agricultural officials, even states using mixtures in quantiti

Some recommendations are s forth as tentative or as preliminar suggestions based on limited exper mental work. The meagerness scientific data, which accounts f reservations, partially explains al why sanction of mixture use h been withheld in other states. some areas, lack of farmer dema is cited as a reason for taking stand.

Present recommendations in t states for use of fertilizer-pesticid deal chiefly with solid mixtures c taining compounds for control of s borne insects. For this, the co pounds most often recommended (in order of frequency): aldrin, h tachlor, chlordane, dieldrin, DDT. a few instances, recommendation given to such combinations as liq mixtures containing insecticides, b solid and liquid mixtures for we control, and pesticidal sprays w urea added.

A number of states do not perm bulk sales of fertilizer-pesticide m tures, including in this restriction called buyers' mixtures and farme mixtures.

Few states place restrictions containers for the fertilizer-pesticid but some require packaging in hea paper, and some prohibit use of w ven bags for them.

Many states analyze the mixtur for their pesticide content. Few ha established tolerances for deficie or excess of pesticide.

A manufacturer who plans t market fertilizer-pesticide mixture is advised to check with state off cials—also with Federal officials interstate shipment is planned—t make sure that the intended use of the mixtures and their labelin are acceptable for registration an that the mixtures would be effec tive without leaving objectionabl residues in soil or on crops.

There is no Federal law specifica regulating fertilizers. But pesticid including those mixed with fertilize if shipped across state lines must registered with the U.S. Departme of Agriculture and must also me requirements of the Federal Insec cide, Fungicide, and Rodenticide A Federal registration for interst shipment is handled by the Plant P Control Branch of the Agricultur Research Service in the U.S. Depar ment of Agriculture. For interst shipment, any change in the kind quantity of a pesticide or the kind grade of a fertilizer is considered separate product and requires a se arate registration.

Economist Tells Why Farmers Fail to Make Optimum Use of Fertilizer for More Profits

EDITOR'S NOTE

This paper, "Economics of Fertilizer Use," was presented by Earl . Swanson, of the Department of gricultural Economics, University of llinois, at the recent meeting of the orn Belt Agricultural Ammonia Conerence held at the University of Illiois, Urbana.

Through the use of full fertilizaon, annual corn production in the 2 north central states could be inreased about 50% over the 1950 evel, according to information pubshed by the U.S. Department of griculture. (Agricultural Handbook o. 68, December, 1954.) Such an inrease would amount to over a billion ushels.

With the information and capital resently available to corn belt armers, they are evidently not inding it profitable to adopt "full" ertilization programs. Before atempting to explain why more ferilizer is not used, it may be helpful to review two economic principles that have application to ferilizer use.

The application of both of these rinciples depends upon knowledge of physical or technical relationship alled a response curve.

The response curve, or relation beween yield and nutrient added, is urely a technical relationship and as uch provides alternative yield possiilities expected with application of ifferent quantities of the plant nutrint. If the farmer is interested in rofits, some basis or rule is needed o select the economic optimum quanity of N from this range of possibilies. This quantity need not, of course, orrespond to the level which would romote, in some sense, optimum lant growth.

Let us proceed to the first economic rinciple to be discussed. This prinple is applicable to farmers with mple amounts of capital available or spending in their farm business. his first principle applies particuarly to those situations where deisions with respect to fertilizer may e made more or less independently f other investments in the farm usiness.

The first principle or rule for the rofitable application of fertilizer s to add fertilizer until the added eturns from the last unit just pays or itself. Hence, the most profitble quantity of fertilizer to apply s determined by not only the techical relation between nitrogen and orn yield, but also by the relation of corn price to the price of nitroen.

Thus, in general, we need not have single recommendation that is good or all time. The point of most profitble use is where the return added y, say, an additional 10 lb. N is qual to the cost of the 10 lb. of N. e should point out that this will sually result in a greater quantity f fertilizer to be added than if the eturn per dollar spent on fertilizer ere made as large as possible.

In cases of ample capital, it is reurns per acre that are of interest nd not average returns per dollar pent on fertilizer.

To illustrate the choice of the rofit-maximizing quantity of N unr different price situations, let us ssume that the price of corn is $1.20 nd nitrogen is 7.2¢ a pound. It ould be noted that the amount of to apply per acre depends on the vel of other practices such as weed and insect control and plant population.

At current levels, or those presently being followed, the optimum amount of N would be about 105 lb. If improved practices are followed, the optimum quantity of N increases about 15 lb. Hence, we see that improvement in cultural practices demands also an increased use of nitrogen in order to maximize profits.

The second principle relates to situations in which a limited supply of capital is available for spending in the farm business. Here we must modify the first principle. Instead of adding fertilizer until the last unit just pays for itself, in the case of limited capital, fertilizer should be added until the last unit adds the same amount to income as is being earned in any other alternative use.

For example, if the added return from an extra dollar spent on protein feed is three dollars, fertilizer should be applied only up to the point where the last unit applied returns three dollars instead of a dollar as in the case of ample capital.

Economists call this the opportunity cost principle. Farmers have used it a long time before economists got around to giving it a name. I would like to illustrate this principle by showing the profit maximizing investments under several capital situations in a specific situation.

Consider a farmer on 320 acres of Muscatine soil (a highly productive soil in Illinois and Iowa). Twenty acres of the farm are in permanent pasture. His yields have been low. Soil tests reveal a need for 3 tons of lime per acre and the phosphate test is low, but adequate potash is available.

There is no livestock on the farm. The operator has no combine but custom hires the harvesting of the oats. Two men are available the year around together with a boy in the summer time. The operator wishes to select a farm plan starting in 1956, and looks ahead for five years and is interested in maximum returns over this period as a whole rather than in any single year. With limited capital, how should he spend it?

A research method that has been developed permits us to consider all possible combinations of selected alternatives in arriving at an optimum farm plan. The alternatives in this particular problem include two rotations each at three levels of nitrogen application:

Rotation	Corn Yields
C-C-O (— crop)	85 bu., 75 bu., 65 bu.
C-C-O- Ce	90 bu., 80 bu., 70 bu.

Hay enterprises with low, medium, and high protein rations were considered as well as two methods of feeding beef cattle. The possibility of purchasing a combine was also considered. What was the optimum allocation of a limited supply of capital under 1948-52 prices?

Results were calculated for three different capital situations: $9,000, $12,000 and $15,000 available for spending in the first year of the plan. Plans were required to be self-financing. Under the $9,000 capital situation, approximately 250 acres of the farm should be devoted to the catch crop rotation with the high application (85 bu. corn) of nitrogen.

The remaining 50 acres should be used for the four year rotation and because of the limited capital, the yield target should be at the 80 bu. level rather than 90 bu. mark. No investments in livestock and machinery should be made in the first year. They should be made in subsequent years. If the farmer has $12,000 capital available, he should go to a high level nitrogen program on all acres. The high profit solution calls for 285 acres of the three year rotation with the remainder in the four year rotation.

Since hogs are also a part of the plan in the first year (because $3,000 are available), the stand-over rotation is selected only to the extent of furnishing the necessary pasture (under the $9,000 program, the four year rotation appeared even though the pasture was not utilized because the four year rotation required less initial capital outlay).

Going to the third situation, that of $15,000 beginning capital we find that the high-profit farm plan again calls for high level nitrogen application on both rotations. Approximately 250 acres should go into the three year rotation at the 85 bu. yield level, and the remainder should go in the four year rotation at the 90 bu. yield level.

The larger supply of capital permits investment in both hogs and cattle in the first year of this plan. These in turn, required larger amounts of roughage and hence the appearance of the four year rotation on 50 acres.

In general, since the standover rotation came into the optimum plan only to the extent of furnishing roughage for the livestock, it would seem that in this situation commercial sources of nitrogen were less costly than that produced from legumes.

I opened my discussion with a question concerning the failure of farmers to adopt a "full" fertilization program. From the two principles and specific cases, we have examined, it appears that except where capital limitations are severe, a high level fertility program is profitable from the standpoint of the total farm business. Several reasons why he advanced for failure to adopt the "full" fertilization program. One may be simply the uncertainty of the results.

This is another way of saying that operating farmers need a better idea of what the response curve looks like. Further, some notion of the "odds" of the season needs to be provided. Failure to guess the response curve exactly may result in errors of two kinds. If an abnormally favorable season occurs and only enough N were added to maximize profits for a normal year, an opportunity would have been lost.

The second type of error is in failure to predict an abnormally unfavorable season. Here, aside from residual effects, the loss is not an opportunity loss but an actual out-of-pocket loss. For this reason, farmers who do not wish to assume great risks may choose to apply N short of the optimum for an expected normal yield. Uncertain prices have the same effect.

Another obstacle to fuller use of fertilizer is important in the corn belt. This is the matter of adjusting leases to provide sufficient incentives for both landlord and tenant. The fact that this is not now being accomplished is shown by the results of a study of tenant and owner-operated farms in western Illinois. The tenant farms received approximately $3.00 additional return for an additional dollar spent on fertilizer; owner-operated farms received about $2.00 additional return for each additional dollar spent on fertilizer. This means that the tenant farms were further away from the point where profits would be maximized (added return just equal to added cost) than the owner-operators. Both groups however were short of the profit maximization point.

Finally, I would mention lack of capital from credit institutions as a reason for farmers not adopting "full" fertilization programs. Since fertilization in the corn belt is a relatively new technology, many bankers view it as a more risky investment than, say, machinery or livestock.

In the case of machinery and livestock, it is more convenient in case of default, to take possession than in the case of fertilizer used in crop production. Accordingly, a more cautious attitude is sometimes taken toward fertilizer loans.

CALSPRAY OPEN HOUSE—Leo R. Gardner, manager of the research and development department for the California Spray-Chemical Corp., welcomed guests to the recent open house in the new laboratories of the bio-screening section of Calspray's research and development department at Richmond, Cal. Present were Calspray officials, left to right, F. J. Juchter, manager, manufacturing department; L. R. Gardner, vice president and manager, research and development; A. W. Mohr, president; Dr. W. D. Thomas, lead research pathologist; Dr. J. W. Hansen, chief formulation chemist, and Dr. R. K. Thompson, field research supervisor. Facilities of the laboratory and several Calspray developed innovations in research equipment were inspected by the visitors. In the new bio lab, they saw the controlled rooms with filtered air sources which are being used to raise experimental insect and animal colonies. The animals and insects raised in this controlled environment will be used for testing new materials in the laboratories. The new materials are also tested on plants. In the new greenhouse, next to the bio lab, the plants necessary for testing new insecticides and fungicides will be grown. The expansion in Calspray's Research and Development Department marks the beginning of the multi-million dollar expansion program that includes a 16-million dollar fertilizer plant and additional quarters for administrative and office personnel.

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GREAT INCREASE RECORDED

Fertilizer-Pesticide Mixes Hit New High

A report on the present fertilizer-pesticide mixture situation just issued by the U.S. Department of Agriculture lends further light on this rather controversial subject. It presents figures that indicate a growing acceptance of these mixtures which attract the farmer on a labor-saving basis, but at the same time place further responsibility on manufacturers to meet the growing demand.

A tonnage increase of 71% during the 1953-54 season is registered over the previous year's tonnage, the report shows. Use in 1953-54 was 149,000 tons as compared to 87,100 the year before.

Such a picture provided the setting for a statement by Russell W. Ludwick, State College, New Mexico, immediate past president of the Association of American Fertilizer Control Officials, at the group's recent annual meeting in Washington, D.C.

"Whether we like it or not, the fertilizer-pesticide mixtures are here to stay. You can be sure that when a farmer spends an extra $11 and gets an increase of a half bale of cotton or 50 bu. more of corn per acre, he is going to continue to buy a fertilizer-pesticide mixture," Mr. Ludwick predicted.

In view of this, it might be well to recall the advantages, from a farmer's viewpoint, of these dual-purpose mixtures. They allow him to perform two important field jobs in one operation, thus saving labor which is one of the most expensive commodities with which the farmer has to deal.

The idea of applying a pest-killer along with crop nutrients has been recognized in the U.S. for perhaps 25 years. Until World War II, however, commercial production of such mixtures stayed small. But in recent years, demand has grown rapidly as evidenced by last year's increase of 71%. Not only in the U.S. is the idea catching on, but fertilizer-pesticide mixtures have been gaining in use in a number of other countries, too.

One of the most fundamental problems, in connection with these mixtures, is the fact that commercial use has outstripped research findings about them. This is illustrated by the differing opinions as to merits and practicality of the mixtures. Recommendations vary widely, not only from state to state, but in some cases, even among agencies within the same state.

The unanswered questions, problems and increasing use, all combine to focus attention on the need for expanded information on production, distribution, application and effectiveness of the mixtures.

As Mr. Ludwick stated, so long as the consumers (farmers) continue to gain economically as well as in convenience that comes from saving an extra application, production can be expected to continue and probably to spread into new areas. This is true especially in the North Central region.

As published elsewhere in this issue of Croplife, the pesticide-fertilizer mixture story is an interesting one. Plant nutrition specialists of the Agricultural Research Service have compiled all available information on these mixtures and their use for the past few years. The results will make clearer the facts concerning demand, the ways in which mixtures are used and what ingredients they contain.

The USDA makes no claims as to these figures being the "last word," but their being brought before both the fertilizer and pesticide trades, should bring into better focus, a geographic picture of use and also the potential value of the dual-purpose mixtures and problems concerning them.

And speaking of "problems," there is no shortage here. The USDA, in its report, points out that fertilizer manufacturers find it difficult, from present information, to formulate two-purpose mixtures to suit each crop and farm. Thus, the fertilizer manufacturer who desires to mix his products with pesticidal materials, needs to know what types of mixtures will supply desired quantities of both pesticides and plant nutrients at the needed rate per acre, without leaving too great deposits of pesticides in the soil.

To make successful mixtures, manufacturers also need to know under what conditions will a particular fertilizer-pesticide be compatible and remain both stable and effective.

From the standpoint of timing, it is easy to see that when the recommended time to apply a fertilizer is also a strategic time to control a particular crop pest, combining these two jobs is highly practical. But in other cases, when timing does not fit so neatly, in which situations does it fit well enough to justify the combining of the jobs? And if such a compromise is made, which consideration—the pesticide or the fertilizer—should get the preference of timing?

More guidance is also needed on applying a mixture when there is a conflict between preferred ways of handling the fertilizer and pesticide; such as broadcasting vs. drilling. In other words, how should a particular mixture be applied when the best way to apply the pesticide differs from the most effective way to apply the fertilizer?

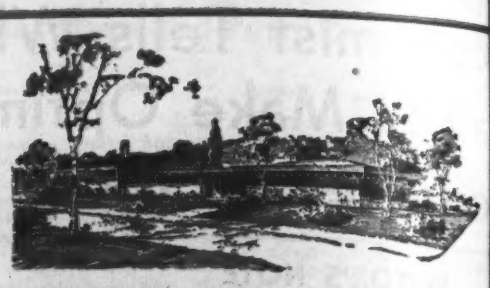
Not only are manufacturers of both fertilizers and pesticides, and farmers involved in the question of mixtures, but the control officials in many states are also deeply concerned about the matter. These men who are responsible for the regulation and control of both sales and distribution of mixtures are concerned over the wide variation in official practices from one area to another.

The Association of American Fertilizer Control Officials and the Association of American Pesticide Control Officials have called on their respective investigators who deal with the mixtures to survey the situation, as an initial step.

Some of the things they want to know, include what present or possible methods are effective and economical for registering, labeling, managing fees, packaging, inspecting, sampling and determining tolerances.

Other problems of more mechanical nature, include those associated with the application of materials. Speculation has been made on the possibility of applying the two types of materials to a crop without the problems of pre-mixed ingredients. Multiple-hopper applicators have been devised by at least one manufacturer in the hope of enabling the farmer to apply a pesticide and fertilizer at the same time but separately and at a different rate for each.

There is apparently no end to possibilities both on the asset and liability sides of this question of fertilizer-pesticide mixtures. But apparently the trade is now pretty well resigned to facing whatever problems lie ahead, feeling, as Mr. Ludwick says, "Whether we like it or not, fertilizer-pesticide mixtures are here to stay."



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MEETING MEMOS

ct. 31—Nebraska Fertilizer Institute, Inc., First Annual Convention, Cornhusker Hotel, Lincoln, Howard W. Elm, Executive Secretary, 917 Trust Bldg., Lincoln 8, Neb.

ct. 31-Nov. 3—United Kingdom National Crop Protection Conference, Eastbourne, England.

ov. 1-4—Ohio Regional Lime & Fertilizer Conferences, at Wilmington Nov. 1, Findlay Nov. 2, McConnelsville Nov. 3 and Cadiz Nov. 4.

ov. 2-3 — Annual Convention, Pacific Northwest Plant Food Assn., Pilot Butte Inn, Bend, Ore.; Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., Secretary.

ov. 2-5—Third annual Mid-Atlantic Farm and Home Show, Convention Hall, Atlantic City, N.J.; William A. Haffert, Jr., Sea Isle City, N.J., executive vice president.

ov. 3-4—Northeastern Division, American Phytopathological Society, Eastern States Farmers Exchange, Inc., 26 Central St., West Springfield, Mass. B. H. Davis, Department of Plant Pathology, Rutgers University, New Brunswick, N.J., secretary.

ov. 4—Fertilizer Section, South Carolina Annual Accident-Prevention Conference, Hotel Francis Marion, Charleston, S.C.; Anton L. Foster, International Minerals & Chemical Corp., General Chairman.

Nov. 6-8—California Fertilizer Assn., Thirty-second Annual Convention, Hotel Mark Hopkins, San Francisco; Sidney H. Bierly, Executive Secretary and Manager, 475 Huntington Drive, San Marino, Cal.

Nov. 8-10—17th Annual New York State Insecticide, Fungicide and Application Equipment Conferences; Bibbins Hall, G.L.F. Exchange, Ithaca, N.Y.; C. E. Palm, Cornell University, Ithaca.

Nov. 9—Conference for Fertilizer Manufacturers, Dealers and Salesmen, University of Maryland, College Park.

Nov. 9—Soils School for Fertilizer and Lime Dealers, Lipman Hall, Rutgers University, New Brunswick, N.J.

Nov. 9-10—Oregon Weed Conference, Senator Hotel, Salem, Rex Warren, Oregon State College, Conference Secretary.

Nov. 11-13—Texas Aerial Applicators Assn., Annual Convention, Corpus Christi, Texas.

Nov. 16—Pesticide Dealers Conference, Rutgers University, New Brunswick.

Nov. 16-17—Ohio Pesticide Institute's Ninth Annual School and Conference, Ft. Hayes Hotel, Columbus, Ohio. J. D. Wilson, Ohio Agricultural Experiment Station, Wooster, Secretary.

Nov. 18—Arkansas Fertilizer School, Little Rock.

Nov. 22—Manufacturing Chemists' Assn., Semi-Annual Meeting and Winter Conference, Statler Hotel, New York.

Nov. 28-Dec. 1—Entomological Society of America, Netherlands Plaza Hotel, Cincinnati, Ohio.

Nov. 29-30—Land Use Forum, Kansas State College, Manhattan, Kansas, Dr. R. V. Olson, Kansas State College, Chairman, Arrangements Committee.

Nov. 29-30—Oklahoma Plant Food Educational Society, Inc., Memorial Union Bldg. Oklahoma A&M College, Stillwater.

Dec. 2—South Dakota Fertilizer Dealers Short Course, South Dakota State College, College Station.

Dec. 5—Soils & Fertilizer Short Course, Institute of Agriculture, University of Minnesota, St. Paul Campus.

Dec. 5-7—Agricultural Ammonia Institute, Kansas City; Jack F. Criswell, Executive Vice President, Claridge Hotel, Memphis, Tenn.

Dec. 5-7—Chemical Specialties Manufacturers Assn., 42nd Annual Convention, Roosevelt Hotel, New York; H. W. Hamilton, 50 E. 41st St., New York 17, N.Y., Executive Secretary.

Dec. 8-9 — Michigan Fertilizer and Lime Conference, Michigan State College, East Lansing.

Dec. 15-16—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Sponsored by the National Cotton Council.

Dec. 28-30 — American Phytopathological Society, Atlanta, Ga.; Glenn S. Pound, University of Wisconsin, Madison, Wis., Secretary.

Dec. 29—Symposium on Health Hazards of Chemicals, before the Pharmacy Section at Annual Meeting of American Association for the Advancement of Science, Atlanta.

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Jan. 4-6—Weed Society of America, Charter Meeting, Hotel New Yorker, New York; W. C. Shaw, U.S. Department of Agriculture, Beltsville, Md., Secretary-Treasurer.

Jan. 5-6—Second Annual Mississippi Insect Control Conference, Mississippi State College.

Jan. 10-11—Eighth Annual North Carolina Pesticide School, North Carolina State College, Raleigh.

Jan. 11-12—Wisconsin Insect Control Conference, Lorraine Hotel, Madison, Wis.

Jan. 15-17 — New Mexico Grain & Feed Dealers Assn., Annual Convention, Hilton Hotel, Albuquerque, with Special Portion for Fertilizer and Farm Chemical Dealers; H. B. Hening, Albuquerque, Secretary.

Jan. 16-18—Southern Weed Conference, Ninth Annual Meeting, Hotel Jung, New Orleans; Dr. E. G. Rodgers, Florida Agricultural Experiment Station, Gainesville, Secretary-Treasurer.

Jan. 26-27—Custom Spray Operators Training School, University of Illinois.

Jan. 26-29 — Agricultural Aircraft Assn., Inc., Sixth Annual Convention, Wilton Hotel, Long Beach, Cal.; Wanda Branstetter, Route 3, Box 1077, Sacramento, Cal., Executive Secretary.

Jan 27—Colorado Agricultural Chemicals Assn., Cosmopolitan Hotel, Denver.

Feb. 6-8—Agronomy Section, Association of Southern Agricultural Workers, Atlanta (Ga.), Biltmore Hotel; W. E. Colwell, North Carolina State College, Secretary.

Feb. 6-8—Cotton States Branch, Entomological Society of America, Biltmore Hotel, Atlanta, Ga. W. G. Eden, Alabama Polytechnic Institute, Auburn, Ala., secretary-treasurer.

Feb. 7-9 — National Garden Supply Trade Show, Kingsbridge Armory, New York City.

Feb. 15-17—California Weed Control Conference, Sacramento and Davis, Cal.; Oliver A. Leonard, Botany Dept., University of California, Davis, Cal., Secretary.

Feb. 15-17 — Western Weed Control Conference, Sacramento and Davis, Cal.; W. C. Robacker, U.S. Department of Agriculture, Nevada Agricultural Experiment Station, Reno, Nev., Secretary-Treasurer.

March 14-18 — National Agricultural Chemicals Assn., Spring Meeting, Hollywood Beach Hotel, Hollywood, Fla., Lea S. Hitchner, NAC Executive Secretary, 1145 19th St. N.W., Washington 6, D.C.

June 28-30—Association of Southern Feed & Fertilizer Control Officials, 14th Annual Convention, Hotel Roanoke, Roanoke, Va.; Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., Secretary-Treasurer.

June 28-30—Seventh Regional Fertilizer Conference of the Pacific Northwest, Chinook Hotel, Yakima, Wash.

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